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DENTISTE DE LA JEUNESSE,

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SOUND AND BEAUTIFUL TEETH,

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PRESERVATION OF THE TEETH

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[illegible]

BY J. B. DUVAL, DENTIST

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THE

DENTISTE DE LA JEUNESSE,

OR THE WAY TO HAVE

SOUND AND BEAUTIFUL TEETH,

PRECEDED BY THE

Advice of the Ancient Poets,

UPON THE

PRESERVATION OF THE TEETH;

DESIGNED FOR

THE MORE INTELLIGENT ORDERS OF PARENTS, AND GUARDIANS; AND CONTAINING SOME USEFUL HINTS TO THE FACULTY.

BY J. R. DUVAL, DENTIST,

MEMBER OF THE ANCIENT ROYAL COLLEGE AND ACADEMY OF SURGERY, JOINT ASSOCIATE OF THE SOCIETY OF THE FACULTY OF MEDICINE IN PARIS, AND OF SEVERAL LEARNED SOCIETIES.

Translated and Supplied with Notes,

BY J. ATKINSON, SURGEON-DENTIST,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON, OF THE LEEDS PHILOSOPHICAL AND LITERARY SOCIETY, &c.

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TABLE OF CONTENTS.

ADVERTISEMENT.

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*Although we have several Treatises on the teeth in our language, yet I am not aware that we have any exactly upon the plan of the present; Mr. Fox's elaborate and justly esteemed book is much too large and expensive for general readers; besides the French seem to have paid more particular attention to the dentist's art, than perhaps any other nation, if we may judge from the scientific books which have been written upon the subject; several of which I have read with the highest advantage, and perhaps with more than ordinary interest, as there is no work in the English language which explains the art of fixing artificial teeth.**

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* *I beg leave to express my gratitude for the liberal encouragement I have experienced since I began to practice more extensively this delicate and highly important branch of surgery. The study of the teeth has always engaged a considerable part of my attention, probably from the circumstance of having, from a very early period of life, been grievously afflicted with the tooth-ache. So early therefore as* 1806, *when passing through*

The work before us, however, does not profess to unfold the dentist's art, but only to give such general directions as the preservation of the teeth, and the cure of their diseases require.

I am responsible for the translation, which I believe is tolerably correct, but I do not pledge myself for the truth of all the doctrines which it contains; the work however is held in high estimation among the Parisians, and it is the best I was able to procure, it is also approved by some of the literati, as will appear from the following quotation taken out of the author's advertisement, "The first edition of the Dentiste de la Jeunesse *appeared in* 1805, *composed of materials hastily collected, and of course contained several imperfections; it nevertheless received from the public a favorable reception. Several learned*

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my anatomical studies, I entered as pupil to Mr. Moore of Temple-bar, Dentist to the Duchess of York: in some of the mechanical parts of the profession, as the best mode of melting and rolling gold, drawing gold wire, rivetting, and several ingenious mechanical contrivances, I am indebted to Mr. Northern; but I did not think myself competent to practise the art in all its branches, until I had received instructions from Mons. Lémale (who taught me the mode of fixing the mineral teeth;) and from other eminent dentists in Paris.

men, among whom are the distinguished authors of the Medical Journals, have spoken favourably of it; and I beg to express my gratitude in particular, to M. Baumes, Professor at the school of Montpellier, who has himself witten an excellent Treatise on the First Dentition; and to M. Friedlander, the learned author of the Physical Education of Man; also to M. Lemaire, who has published a work called the Dentiste des Dames; *and to M. Fournier one of zealous editors of the Dictionary of Medical Science. Encouraged by so much benevolence I have endeavoured to supply in this second edition the defects of the first; but notwithstanding my utmost zeal and attention, I have probably still failed in attaining the desired end; and have therefore again to solicit the indulgence of the public."*

For the sake of distinction, I have designated the authors notes by figures, as 1, 2, 3, *&c. while my own are marked with letters, as a, b, c, &c.*

If this translation should be a means of inculcating more just views, of so important a part of the animal economy; of alleviating or preventing the painful diseases to which it is liable; of removing many injurious prejudices, which are at present widely diffused in society; and of preventing those useful organs from being wantonly, and unnecessarily

sacrificed, and that too by persons destitute of anatomical skill; I shall receive for this feeble attempt, the highest gratification which a liberal mind is capable of enjoying; the consciousness of having been useful to the great family of mankind; the several members of which, like those of the human body, exert a reciprocal action upon each other, and are possessed of such admirable sympathies, that the happiness of the whole is intimately connected with that of every individual.

J. A.

No. 3, East Parade, Leeds.

PREFACE.

Montaigne observes, in treating of education, that it is necessary to sweeten the salubrious food of infants; (1) so likewise the medical precepts for the preservation of health do not always exclude the graces: (2) and I might refer to those dietetic sentences of the School of Salerno, which being couched in poetical language, are more effectually impressed upon the memory. In imitation of this example, I have retraced the ideas of the poets, in order to inculcate the necessity of attending to the teeth. In addressing youth, it is necessary to make use of language, drawn from those sourses which strike the imagination, as being more suitable to their taste: it is doubtless a subject which

(1) Liv. i. c. 25.

(2) Hippocrates recommended that the physician should use pleasing language, and have an agreeable address, when near the patient's bedside, as a powerful means of gaining his confidence: Tasso also says, that in offering medicine to infants, it is useful to rub the edges of the vessel with sirup; thus happily deceived, he drinks the bitter draught, and owes his life to his error.

Cosi all'egro facicul, porgiamo aspersi
Di soave licor gli orli del vaso:
Succhi amari, igannato, intanto ei beve
E dall'iganno suo vita riceve.
La Gierusalemme liberata, c. iv. 3.

is attended with some difficulty; but it is rendered necessary, because the various works which have been published upon the preservation of the teeth, although good, are not calculated for those to whom they are addressed: perhaps the anatomical details with which they abound, may have contributed to this effect; and as these are so repugnant, I have only just glanced at them, for the purpose of being intelligible.

I therefore commence the work, by giving the advice of the antient poets upon the preservation of the teeth, for the purpose of shewing the attention which was paid to the mouth in distant ages; and to prevent an interruption in the reading, have placed afterwards, according to numerical order, the notes which relate thereto; they consist of passages from the greek and latin poets, in transcribing which, I have had no other ambition, but that of forming an historical chain in our language; and if I have rendered some of them into French, it is because an imitation, or translation of the antients, has appeared equal to the original.

I then proceed to shew the best means with which we are at present acquainted, of preserving and rendering the teeth good and beautiful. This part, which is the principle, is divided into eight chapters; the first treats of the teeth in general; the second, of the first dentition, or milk teeth; the third is appropriated to the second dentition, or to the secondary and permanent teeth; the fourth

treats of the manner and effects of cleaning the teeth; in the fifth we take a view of those things which are injurious to those organs; the diseases of the teeth, and connecting parts, are the subject of the sixth; certain operations relative to these parts, are indicated in the seventh; and the eighth and last chapter is destined to the examination of certain prejudices, respecting the care which the teeth require.

In developing each of these subjects, I do not enter into minute details on the nature of the teeth, their diseases, and the operations which they require; this would have been to exceed the limits of the plan which I proposed, and would infringe upon that of a work which I intend for those who cultivate the dentist's art. I have, therefore, contented myself by explaining what attention the teeth usually require; and to make it more effectual, a mixture of the useful and the agreeable, has appeared to me preferable to the severer language of science.

Although designed for youth, it may be read perhaps by all classes of society with interest and utility. Attention to the teeth is necessary at every age; and even when we have been deprived of some, still it is of very great importance to be able to preserve those which remain. It is an old saying, that we never know the value of the teeth until they are lost; we must not, however, wait till this time, to be made acquainted with the truths which tend to their preservation. Some of

the expressions of the poets which are here presented, will perhaps be considered as too satyrical; but let it be remembered, that in order to fix the attention of young persons to their duty, whether physical or moral, the keenness of wit will often do more than the wisest councils of philosophy; and that the best book upon the causes and inconveniences of the loss of teeth, would probably not have so powerful an effect, as the lesson which is contained in the following epigram, by the Chevalier de Cailli.

Retirez-moi d'une peine
Oú je suis depuis long temps;
Dites moi bonche d' Ismène,
En quel endroit sont vos dents.

The advise of the ancient poets upon the preservation of the teeth, was read at the public meeting of the Society of Medicine in Paris, April 5th 1803 and inserted in the Magazin Encyclopédique, published by M. A. L. Millin. No. 19.

THE

DENTISTE DE LA JEUNESSE.

ADVICE OF THE ANCIENT POETS

ON THE

PRESERVATION OF THE TEETH.

The opinions of men, *in the different periods of social life*, have been very various respecting the character which constitute the beauty of teeth; the natives of Peru, (1.) and of New Holland, (2) esteem highly the privation of a front tooth; the Indian of Java, (3) takes care to supply the deficiency with a tooth of gold; and the Japanese, (4) pass several days without eating, to permit the colour to fix, with which they die their teeth. In general, however, among the moderns as well as among the ancients, and particularly the European nations, the ideas of beauty are better founded.

The poets have spoken of the teeth, from the time of their cutting, (5) to the period when according to the expression of Lucretius, (6) age seems to demand their fall. The solidity, (7) the fine arrangement, (8) and the whiteness of these organs, suggested to the poets a variety of images; thus they speak of a mouth of roses, (10) and

lips of vermillion; (11) And by the striking contrast in which they represent to us the disorders of the mouth; likening them to hideous forms, have they not intended to warn us of the care which they required from us?

Ovid says, (12) want of cleanliness tarnishes the lustre of the teeth; the yellow, livid or black colour of these organs mentioned by Horace, (13) was supposed to arise from the same cause; and Martial (14) has compared them to box and to resin. The author of the fable, (15) indicates the source of the disorder in his Picture of Envy; he gave to this monster, teeth covered with rust (*livent rubigine dentes*) as if envy being deprived of the opportunity of eating or knawing, a kind of slime or tartar had collected round the lengthened teeth. (16) Plautus represents a hungry parasite, as saying. "I have a bitter mouth and thick teeth: (17) Catullus, in the portrait of the debauched Æmilius, says, his teeth were a foot and a half long and his gums like the edge of an old coffer. (18) This image expresses the action of the tartar, which by destroying the gums, gives the teeth a lengthened appearance, loosens them, and accelerates their destruction. (19) In one of Martial's Epigrams we read, that an old woman had lost almost all her teeth, only four remained, and they were loose; she caught cold, and in the act of coughing they were all *ejected*, (20) which was not a poetical fiction, but founded in fact; Herodotus (21) relates that the same adventure happened to Hippias son of Aristippus. Whatever may have been the causes of the loss of teeth, people have in all ages sought to supply the deficiency: thus we find, Palladius (22) joking a superannuated coquette, in saying to her, that for the price of her hair, with that of her paint, her wax, her honey, and her teeth, she might have bought an entire mask. The language of the greek poet, Martial is equally satirical; addressing himself to Lelius

he says, "You are not ashamed to purchase teeth and hair but what will you do with one eye, as there are none to sell."

The toothless mouth of Egle, was repaired by bone and ivory, (24) and Galla more refined, removed her artificial teeth during the night, (25) and several other instances are recorded of the aid afforded by this art. It is highly probable, that even in the time of Hippocrates, other means were known of fixing artificial teeth, besides the use of gold wire, (26) it is probable they made use of ligatures of a less solid texture, otherwise Horace would not have had occasion to cite the sorceresses Canidia and Sagana, running the city and losing the one her teeth, and the other her false hair. (27.)

When the jaws are deprived of their teeth, they give to youth, as well as to old age, the unseemly appearance of decripitude. (28.) According to Juvenal, (29) they are both reduced to the necessity of chewing their food with their worn gums, and their lips are not capable of preventing the flow of the saliva, with which they are perpetually moistened.

In giving lessons to youth, upon the propriety of cleanliness, the author of the Art of Love, (30) pays attention to the odour of the mouth, which cannot always be covered by perfumes, therefore he recommends (31) to such persons, never to approach too near those they are addressing, particularly when the stomach is empty. Altho' this defect may arise from other causes, yet it is frequently owing to the neglected state of the teeth. (32)

We have now given a sufficient view of this picture; (33) but as the remedy is almost always found by the side of the evil, so we will endeavour from these same sources to gather some useful counsel. Macedonius (34) said to an old lady, what medical art can ever be able to fasten

your teeth? Martial answered, "Cascellius is in the habit of fastening as well as of extracting teeth." (35) Precepts for the preservation of the teeth may be found in books which treat of the art, but the lessons of the poets though less instructive will doubtless be more agreeable.—We read in the *Art of Love,* (36) that men should never suffer tartar to remain upon their teeth, and that young ladies should wash theirs every morning with water (37) and Ovid seems to have been aware that water alone was not always sufficient: in order that beauty may not suffer in laughing, from teeth which are black, too long, or badly arranged, he recommends, the play of the lips, for the purpose of hiding the deformity: (38) could he have been ignorant what the aid of a dentist can effect in such a case? His salutary operations often give to the mouth the graces which Solomon admired in the queen of Sheba. "Your teeth," said he, (39) "are like a flock of sheep, that are even shorn, which came up from the washing,"

The use of water was not the only means employed for cleaning the teeth; for they had recourse to medicated compositions: some were called dentrifices (40) and were composed of powders and perfumes: Martial seems to consecrate their usage in addressing a person who had artificial teeth, and who made use of a dentifrice. "What comparison is there," says he, "between you and me? how can the young lady prefer me, who am not in the habit of giving that lustre to the teeth, which artificial ones are capable of. (41)

We find a great number of receipts, (42) both in prose and verse, given by the ancient physicians, among which are those of Messalinus and Octavius (43) perhaps it is doubtful whether these compositions were preferable to the dentifrice which was presented to Calpurnianus, by Apulias: the charming verses with which it was accompa-

nied, announce it to be composed of the finest drugs of Arabia. "It is an excellent powder" says he, "very fine, which has the property of whitening the teeth, of dissipating the swelling of the gums, and of removing that which adheres to them, so compleatly, that no traces of tartar can be perceived even when the gums are exposed by laughter. (44)"

When Martial (45) reproaches Fescennia of having pastilles in her mouth, to correct the bad breath occasioned by the wine she had drunk the preceding night, did he not consider them as a kind of dentrifice? "These breakfasts" said he, "make the teeth clean," *ista linunt jentacula dentes.*" We must not lose sight of the poets expression, *jentacula*; as it reminds us of the obligation of paying attention every morning to the teeth.

(46) The electuaries and opiates destined to the same use, might perhaps be considered of a less antient standing, if we did not find some formulæ in the first books of the Art: (47) neither were odoriferous substances forgotten. What an opposite taste was displayed by the Celtiberians, who made use of urine as a dentifrice, (48) at the risque of swallowing it! They must have been mightily enamoured of fine teeth! Catullus suspected that Ignatius was in the habit of employing this disgusting means used by the Celtiberians, as he was incessantly laughing in order to shew his teeth. (49) "To increase the lustre of his teeth" said he, "Ignatius uses something more than a simple gargle.

Petronius, in describing the luxury and effeminacy of a certain people, observes that they made use of silver tooth picks. (50) Martial says "the best tooth-pick is the lentisk (51) if, however, you cannot procure a tender-shoot, you may pick your teeth with a quill," but this was not to be used too freely. Ovid forbids the picking of the teeth, in com-

pany. (52) The neglect of this rule by Esculanus, probably drew upon him the remonstrance of Martial: "He was almost toothless" says he, "and the tooth pick was constantly in his mouth." (53) The Coquettes of Greece, when they were laughing, were in the habit of holding, a little branch of Myrtle, in order to display their beauty, between their teeth; this trait has not escaped the notice of the comic Alexis; (54) perhaps however it may have been used, for the sake of necessity. (55) Hippocrates (56) and the other physicians of antiquity, (57) recommended certain substances to be chewed, for the purpose of removing a swelling of the gums, and of fastening loose teeth. From the advantages which have been experienced, some of these have been converted into articles of luxury. (58) Such is the advice given by the ancient poets upon the preservation of the teeth; it is in vain to observe that Tibullus represents Venus as always sure to please, without having paid attention to the mouth: (59) it is only by conforming to the precepts of the art, that we can give to the teeth that lustre alluded to by Ovid, in the following expression, "I can perceive your attentions, by the whiteness of your teeth." (60) When Julia presented herself to Manlius, she shone, according to Catallus, by a flowry mouth: (61) she doubtless possessed those teeth of snow so sung by the favourite of the muses, (62) or that row of pearls so extolled by Lucian; (63) the lustre of which was esteemed by Theocritus, as above that of the finest marble of Paros. (64)

Let youth, who with too much security regard the loss of the teeth as an uncertain problem, remember that according to Martial, the figure cannot be agreeable when a front tooth is wanting, (65) a greek poet observes that such a mouth, has lost the graces with which it was decorated: (66) Ovid wisely proposes as a remedy against

love, to make her laugh who has defective teeth; (67) attentive to this stratagem, ought not the young amante to recollect, that art is capable of supplying the defect, (68) and should it not call to the remembrance of him, who wishes to please the following lines:

Si Chloé dans ses dents vous offre quelque appas,
Par les vôtres, Daphnis, ne lui répugnez pas (69).*

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* Sir John Sinclair observes in his Code of Health, that Professor Tinke relates, that slave dealers are well acquainted with semiotics (the doctrines of signs or symptoms,) and it is said that Boerhaave learnt the characteristic signs of perfect health from slave dealers. At the sale many blemishes are attempted to be concealed, but those which are apparent very much diminish the value of the slave. The want of a tooth for example, makes a slave worth two dollars less.

MEDICAL GEOGRAPHY VOL. 1. P. 449.

NOTES.

(1.) De Paw in his Philosophical Researches on the Americans vol, 1, sec. 1, p. 11, gives an account of this whimsical custom among the Peruvians, and observes that the same mutilation is also practised in Congo and Matamba, in Africa as well as in New Guinea.

(2) New Voyage round the World by Dampiere, vol. 2, chap. 16, p. 141. Account of an Expedition to Botany Bay by Watkin-Tinch, p. 70, Blumenbach *collectionis suæ craniorum* dec. 3 and 4, tab. 27 and 40. Collins has described the singular and laughable ceremonies which are observed during the extraction of this tooth; in his account of the New English Colony in New South Wales, page 563.

(3) Hinc etiam videas Javanos ac cæteros Indos rariores ostendere dentium ordines, in quorom vacuos loculos ditiores aureos reponunt dentes. J. Bontii, *de medicinâ Indiorum. lib.* 4.

(4) On the spirit of the manners and customs, of different people, by Demeûnier, book 9. chap. 2.

(5) . . . . cum septimus annus
Transieris puero, nondum omni dente renato.

JUVENAL, *Sat.* 14, *v.* 11.

(6) Nec minus in certo dentes cadere imperat ætas
Tempore. . . . .

LUCRETII, *de Naturâ rerum, lib.* 5, *v.* 672.

In modifying the text my intention is to destroy an error which has been consecrated by time: it is not old age which causes the teeth to drop out: but at this time of life, people are often deprived of them from other causes. This has not escaped the observation of Hippocrates who after having spoken of the loss of the first teeth, says expressly (p. 241, Foesii) *At qui postea nascuntur, ad senectutem usque remanent.* Anacreon also (ode 58) offers us a proof of this truth who in the middle of decripitude, and after the pleasures of a voluptuous life, preserved his hoary hair and his old teeth; and which is also exemplified in the East Indies, in Schoutten's Voyage, vol. 1, p. 257. Bougainville's Voyage, p. 11, chap. 3, and among the natives of Surinam.

(7) *Cum calceatis dentibus veniam*, said a parasite in the Comedy of the Captives, by Plautus, ACT II. SCENE II. an expression which accords so

well with that which is used in our language to express the opposite state, *dents déchaussées.*

(8) Filia mea, quod tibi verbum fugit è vallo dentium.

HOMERI, *Odys. liv.* 1. *v.* 64.

Infans septenos postquam compleverit annos,
Producti dentes vallus ut oris erunt.

Ex Elegia Solonis, in lib. 6. *Stromatum.*
Clementis Alexandrini.

C. Bachot, in his Treatise on popular Errors. p. 13, translates the above lines thus,

L'enfant ayant parfait le premier septenaire,
Sa bouche tient les dents pour rempart salutaire.

(9) *Quid margaritas dentium præcandidorum proloquar?* was asked by a poet, as related by Ernest Vœnius, *in Tractatu physiolog. de Pulchritudine.*

(10) Purpureo vocem ab ore virgo misit.

Ex Simonide, Athenæi Deipnosop. lib. 13. *p*, 604.

Roseoque hæc (Venus) insuper addidit ore.

VIRG. *Ænied.* 1. *v.* 593

Quos inter Augustus recumbens
Purpereo bibit ore nectar. . .

HORAT. *Od. lib.* 3. *Od.* 3.

(11) Sicut vitta coccinea labia tua.

SOLOMON, *Cantica Canticor.* c. 4.

Illic purpureis condatur lingua labellis.

OVID. *Am lib.* 3, *Eleg.* 14.

Olli, purpurea delibantes oscula,
Clemente morsu rosea labella vellicent,
Candentes dentes effugient suavio.

APULEII, *Anexomenos, ex Menandro.*

(12) Quid si præcipiam, ne fuscet inertia dentes?

Art. Amat. lib. 3. *v.* 193.

(13) Luridi dentes. . . . . lividi. . . . . . atri.

Carm. lib. 4. *Od.* 13; *Ephod. lib.* 5; *Epist.* 8.

(14) Et tres sunt tibi, Maximina, dentes;
Sed plane piceique, buxeique.

Lib. 2, *Epig.* 41.

(15) *Métam.* 2. *v.* 776.

(16.) Rubiginosis cuncta dentibus rodit......

MARTIAL, *lib.* 5, *Epig.* 29.

(17) Os amarum habeo, dentes blennos, lippiunt fauces fame.

Curcul. act. 2, *sc.* 3.

(18) .... Hoc (os) dentes sexquipedales,
Gingivas vero ploxemi habet veteris.

Lib. Epig. 94.

(19) As a long abstinence from food is capable of producing such sad effects upon the teeth; Plautus has retraced the idea, by an expression which he has used in speaking of a Parasite, who was afraid of loosing his teeth on account of his hunger, *dentes ne dentiunt*, Mil. act 1. sc. 1. Bachot, in his Treatise on Popular Errors, vainly attempts to maintain that the teeth are not lengthened by hunger; he has not consulted the truth Ovid who was a more faithful observer goes further, he represents famine tearing up the grass with her nails, aided by the few teeth which remained, *unguibus et raris vellentem dentibus herbas*, Metam. viii, v. 803. And here it is pleasing to see the effect of observation; the favorites of the muses were not less endowed than the physicians, which are also the sons of Apollo, with that perspicuity which constitutes the chief merit of both.

(20) Si menini, fuerant tibi quatuor, Ælia, dentes;
Expuit una duos tussis, et una duos.
Jam secura potes totis tussire diebus,
Nec istic quod agat tertia tussis habet.

Lib. 1, *Ep.* 20.

In making a free translation of the epigram, or rather in imitating it, Marot has preserved all its energy, and in the last lines he has even exceeded that of the original.

S'il m'en souvient, vieille au regard hideux,
De quartre dents je vous ai vu mâcher;
Mais une toux dehors vous en mit deux.
Une autre toux deux vous en fit cracher.
Or, pouvez bien toussir sans vous fâcher;
Car ces deux toux y ont mis si bon ordre,
Que si la tierce y veut rien arracher,
Non plus que vous, n'y trouvera que mordre.

(21) *Herodoti Halacarnas, Irato*, lib, 6,

(22) Emens commam, fucum, ceram, mel, dentes,
Hæc impensa larvam emisses.

Anthol. gr. lib. c. 213, *Eph.* 13.

The same idea has been expressed in a different manner by Brébœuf.

L'autre jour Alison partit si follement
Pour un long et fâcheux voyage,
Que, sortant de chez elle avec empressement,
Elle oublia ses dents, ses gants et sou visage.

Recueil d' Epigrammès de La Martinière.

(23) Dentibus atque comis, nec te pudet, uteris emptis;
Quid facies oculo, Lælia? Non emitur.

Lib. 12, *Epig.* 23.

(24) Sic dentata sibi videtur, Ægle,
Emptis ossibus, Indicoque curnu.

Lib. 12, *Epig* 73.

(25) Cum sis ipsa domi, mediaque ornere, suburâ.
Fiant absentes, et tibi, Galla, comæ:
Nec dentes aliter, quam serica reponas.

*Lib.*9, *Eph.* 38.

This courtisan was aware that it was a certain means to preserve their whiteness, and when the poet observed this stratagem, he exposed it by a double sarcasm, an imitation of which may be found in the touches of the siegneur Des-Accords, p. 64:

Thaïs habet nigros, niveos Lecania dentes;
Quæ est ratio? emptos hæc habet, illa suos.

Marguerite a la dent fort noire,
Catin l'a blanche comme ivoire:
D'où vient telle diversité?
Catin a la sienne acheté.

(26) Seven teeth united with gold wire, were found in a tomb, along with several greek vases, (Trichbein peintures des vases, t. I. p. 63.) and this wire, as well as thread, was prescribed to fix the loosened teeth, in a fracture of the lower jaw.

(27) . . . . At illæ currere in urbem:
Canidiæ dentes, altum Saganæ caliendrum
Excidere, atque herbas, atque incantata lacertis
Vincula cum magno risuque jocoque videres.

Serm. lib. 1, *Sat.* 8.

(28) Territat os nudum. . . . .

Sulp. Luperci Servasti, *Epig. de Cupiditate, v.* 38.

(29.) Frangendus misero gingivâ panis inermi.

Sat. 10, *v.* 200.

. . . . . . Et longâ manantiâ labra salivâ.

Sat. 6, *v.* 622.

(30) Nec malè odorati sit tristis anhelitus oris.

OVID. *Art. Amat. lib.* 1. *v.* 52.

It was doubtless to prevent the odour of the mouth from being perceived that the Medes, who were notorious for their luxury, held a a branch of laurel in their mouth, according to the report of Virgil :

. . . . Animas et olentia Medi
Ora fovens illo (lauro). . . . . . .

Georg. 2, *v.* 133.

(31) Cui gravis oris odor, nunquam jejuna loquatur;
Et semper spatio distet ab ore viri. . . . .

Art. Amat. lib, 3, *v.* 277.

(32) The neglect of cleanliness may often give occasion to repeat what we read in one of the Elegies of Tibullus,

Cessas dente olente minister.

Or to make the following apostrophe;

Votre bouche, en riant, fait que mon nez rechigne
Du noir désordre de vos dents,
Sans que je leur impute une vapeur maligne,
Qui peut-être vient du dedans.

J. CONART, *Recueil de Poesies diverses Paris*, 1651, *p.* 113.

(33) Let it not be believed that the poets have overcharged this picture; and that I in my turn have contributed thereto, it is copied from nature; and if science should not attest it, the too late and unavailing complaints of those who have neglected their teeth would be sufficient to make it evident.

(34) . . . . . . quis enim dentium
Ordinem firmabit medicinali dolo?

Anthol. græ.lib. 11, *c.* 9, *Ep.* 3.

(35) Eximit aut reficit dentem Cascellius ægrum.

Lib. 9. *Ep.* 56.

(36) Linguaque ne rigeat: careant rubigine dentes.

OVID. *Art. Am. lib.* 1. *v.* 515.

(37) Oraque susceptâ mane laventur aquâ.

Ib. lib. 3. *v.* 197.

It is nearly in the same terms, that Q. Serenus Sammonicus, author of a Medical Treatise, written in verse, gives directions for the management of the teeth, &c.

Sæpe etiam gelidâ gingivas collue lymphâ,
Dentibus ut firmum possis servare vigorem.

De Medicinâ preæcepta saluberrima, c. 24.

(38) Si niger, aut ingens, aut non erit ordine natus
Dens tibi, ridendo maxima damna feres.
Quis credat? Discunt etiam ridere puellæ:
Quæritur atque illis hac quoque parte decor.
Sint modici rictus, sint parvæ utrimque lacunæ;
Et summos dentes ima labella tegant.

Art. Am. lib. 3. *v.* 277.

Certain Ladies who had read these opinions of the poets in the Magazin Encyclopédique, having heard that I intended to have them reprinted in this little work, have desired me to give the translation of this passage of the Art of Love, in consideration to their sex, in order to gratify them: I shall therefore proceed, to give such a one, as is given by a French poet; it is a kind of receipt, and gives some advice which may be useful to those who have not called in the aid of the art.

La plus aimable femme est tristement changée,
Quand son ris nous découvre une dent mal rangée:
La longueur en rèvolte, ainsi que la noirceur,
Et chaque homme en devient l'implacable censeur.
Qui l'aurait jamais cru? Venez apprendre à rire:
Par des charmes secrets certains ris nous attire.
Evitez ces grands plis et ces vides affreux
Que les ris déréglés sillonnent avec eux.
Par la lèvre toujours que la dent ombragée
Montre la bouche en deuz faiblement partagée.

(39) Dentes tui sicut greges tonsarum quæ ascenderunt de lavacro.

Cantic Canticor. c. 4. *v.* 2.

(40) A name derived from the Latin word (dentrificium) which Pliny has used in his Natural History, Book 36; altho' this name was more frequently applied to tooth powders, other compositions have received the same name on account of their destination:

Quod vero adsumpsit nomen de dente fricando.

Q. Serenus Sammonicus, de medicinâ, c. 14.

(41) Quid mecum est tibi? me puella sumat,
Emptos non soleo polire dentes.

Lib. 14. *Ep.* 56.

(42) Galien, *de Comp. med. sec. loc. lib.* 5. has transmitted to posterity the formulæ of two dentifrices written in verse: Democritus drew them

out of a little book called *Pythicus*, which was also the name of him who prepared them.

(43) One of them, used the powder of radishes dried in the sun, or of white glass finely pulverised and mixed with indian spikenard: Messalinus made use of a dentitrice composed of burnt hartshorn, mastic and sal ammoniac. *Scribonius Largus. de comp, med.* c. 2. *comp*, 60.

(44) Calpurniane, salve properis versibus.
Misi, ut petisti, mundicinas dentium,
Nitelas oris ex Arabicis frugibus,
Tenuem, candificium, nobilem pulvisculum,
Complanatorem tumidæ gingivæ,
Converritorem pridianæ reliquiæ,
Ne qua visatur tetra labes sordium,
Restrictis forte si labellis riseris.

Apul. *in Apolog.*

(45) Ne gravis hesterno fragres, Fascennia, vino,
Pastillos Cosmi luxuriosa voras:
Ista linunt dentes jentacula; sed nihil obstat,
Extremo ructus cum venit a barathro.

Lib. 1, *Ep.* 88.

(46) *Medicamentum poliendis extergendisque dentibus comparatum in oblongam cuspidem solidatum.* Nomenclator omnium rerum, Hadriani Junii, med. Œuvres de Paré, liv. 25. chap. 38. Dispensat Pharm. Univ. de W. Triller, t. 2, p, 533. Elémens de Pharmacie de Beaumé, p. 854. Nic J. Jaquin Select. Stirpium Americ. Hist.

(47) Scribonius Largus, Comp. 57. Marcellus Med. de Bordeaux, Comp. med. p. 298; Ælii Promoti Dynameron, c. 80. in Tract, de Scorbuto J. Bona, Veronæ, 1751, p. 232, Dioscoride, liv. I. c 67.

(48) The women, as well as the men, had recourse to this means of *propreté*, and I may add, that by a species of refinement, they only made use of the urine preserved in cisterns, as Strabo informs us in his Geography, Book 3. Quippè qui urinâ in cisternis inveteratâ laventur, eâque cum ipsi, tum eorum uxores dentes tergant, quod Cantabros facere et eorem confines aiunt. Consult also the Universal History by Didorus of Sicily, Book 1 v. 22.

(49) Nunc Celtiberus, Celtiberiâ in terrâ
Quod quisque minxit, hoc solet sibi manè
Dentem atque russam defricare gingivam:
Et quo iste vester expolitor dens est,
Hoc te ampliùs bibisse prædicet loti.

Epig. in 38 *Egnatium.*

Although L. Apuleus (in Apologia) has substituted the word defricare, for that of pumicare, and this alteration has been approved by the scholiastes, yet the idea expressed by pumicare, seems to accord particularly with the hard bodies used for frictions, by the antients, among which was pumice stone (pumex) and which also entered into the composition of their tooth powders.

(50) Ut deindè spina argentea dentes perfodit.

Satyricon, p. 61.

(51) Lentiscum melius: sed si tibi frondea cuspis
Defuerit, dentes pennâ levare potes.

Lib. 14, *Ep.* 22.

(52) Non coram dentes defricuisse probem.

Art. Am. lib. 3, 216.

(53) Medio recumbit imus ille qui lecto,
Calvam trifilem semitactus unguento,
Foditque tonsis ora laxa lentiscis,
Mentitur Esculane; non habet dentes.

Lib. 6, *Eph.* 74.

(54) Cogitur—tali myrti frustulo labia transtinere et ori facere intercapedinem. Alexis comicus meretricium delicias describens, Athenæ Deipnosoph, lib. 13.

(55) *Lentiscus myrtusque emendant oris odorem,* said Quint. Serenus Sammonicus c. 14. but the lentisk and the myrtle, not only communicate to their breath their sweet perfume, but if we may believe Pliny, (liv. 24. c. 7.) and Dioscorides (liv. 1. c. 75.) et 118) they fortify the gums, and thus they contribute to fasten the teeth. We need not therefore be surprised, that according to the report of Paré, Surgeon to Henry III. and to Henry IV, the toothpicks of lentisk were so common in Languedoc, from whence they were conveyed to the lords of the court; the prevailing custom of chewing it, may also having given rise to the idea of making little tooth brushes of it. In America it is customary to use a species of the *lichnis saponaria* for these two purposes; and in the kingdom of Cambay (Cambaie,) according to Carren, in his Voyage round the world, vol. 3. p. 44. the poor as well as the rich spend two hours every morning in rubbing their teeth with a small piece of wood. Such was doubtless the origin of the prepared roots and the brushes which are in general use.

(56) *Prosunt etiam quæ manduntur,* said the divine old man, in speaking of pain of the teeth and gums (lib. de affectionibus, p. 517.)

(57) Strobelberger has collected the names of those physicians, and placed them by the side of the names of the substances which they re-

commended to be chewed, in his *Treatise de Podagrâ dentium, Lipsæ,* 1630. although the title of this book is rather singular, yet we cannot read its details without interest.

(58) The Asiatic is in the habit of chewing Betel, the inhabitants of Chio use mastic, and various other people have constantly tobacco in their m uths, neither the mode of using these substances, nor the precious boxes, which contain them, will ever hide from the eye of the observer, the motive for using them. It was from this usage which has been consecrated by time, that Boettiger has taken the ingenious idea of giving to the servant, whose office it is to make ready all that is necessary for the teeth, the name of *Mastiché*: the dissertation given by the learned author, upon the subject, as well as the rest of the toilette of the Roman ladies, is enriched with such accounts, as cannot be read without the greatest interest. See the *Magazin Encyclopedique.* An. xi. t. 2. p. 443.

(59) Illa placet quamvis inculto venerit ore.

Lib. 1. *Eleg.* 8.

(60) Cur mihi nota tuo causa est candoris in ore?

Ovid, *Art. Am. lib.* 3, *v.* 227.

(61) Jam licet venias, marite,
Uxor in thalamo est tibi,
Ore floridulo nitens.

Epig. 68, *in Nuptias Jul æ et Manlii.*

(62) *Nivei dentes.*

(63) How, said this philosophical historian, (in giving the portrait of Pantheus) can I describe the beauty of her teeth, which she presented to the view in the act of laughter; white, equal, closely and compactly placed, they presented in their arrangement, the image of a fine necklace formed of pearls the most regular, and the most brilliant. (*Imagines* no. 9.)

(64.) . . . . dentium autem
Candidiorem nitorem Pario referebat marmori.

Eidil. 6. *v.* 37.

(65) Nec grata est facies cui gelasinus abest.

Lib. 7, *Eph.* 24.

Martial has made use of the word *gelasinus* to express a tooth, because the inscisores are called by this name, in greek, from the verb γελάω, *rideo*; these teeth being the most shewn when we laugh, as Ingrassius observes, *in Galeni lib. de ossibus comment.* c. 4.

(66) Et os priores non habens gratias.

Anthol. græc lib. 7. Ep. 146.

(67) Si malè dentata est ; narra, quod rideat, illi.

In lib. Remed. amor. v. 339.

(68) How frequently does the dentist lend his aid, in order to fulfil this intention according to that maxim of Ovid : *Multa viros nescire decet. (Art. emat. lib.* 3. *v.* 229,)

(69) This advice will doubtless please the ladies, before whom young men often present themselves, who are so inattentive to the precepts of Ovid on cleanliness, as a means of pleasing, that they have often teeth covered with slime and tartar, by which they expose themselves to the reproach which an ancient poet, applied to Castellanus, whose teeth were neglected " a foul leaven" said he, " ferments within your mouth".

. . . . Cœnum tibi bullit ore.

Anthologia poetarum lat. Ed. Burmann, t. 2, p. 468.

It was doubtless, that men might escape a similar reproach, that the physician Bretonnayau, in his *Cosmotique et Illustration de la face*, addressed them thus :

Adoncque s'il advient que la dent, qui l'ivoire
Doit passer en blancheur, soit rance, jaune ou noire,
Tu y remédiras, les frottant, les lavant,
Leur rouillure curant, qui les gaste cavant.

CHAPTER I.

On the Teeth in general.

It is not enough to know with the poets, the mode of treating the teeth adopted by the ancients; it is of more importance to be acquainted with the best and most likely means of rendering and preserving them in a healthy state. Although the idea of goodness, seems almost inseperable from that of beauty, yet it cannot be denied that the teeth may have a very fine external appearance, and yet be decayed; and on the contrary, they may be in a sound state, although highly disagreeable to the eye. Sometimes we have teeth of a milk white hue, the sides of which we are obliged to file, in order to remove the caries; and these surrounded by lips of vermillion, may still offer the pleasing contrast of the lilly and the rose united; in other cases we find the teeth so irregularly formed, as to take away from the physiognomy of the person its distinguishing characteristics, and imprint upon him those of the brute; from which P. Zacchias, in his Medico-

legal Questions, observes, that the Cannonists should take into consideration a deformity of this kind, and not admit into clerical orders any one who was so disfigured. If in a majority of cases in the formation of the teeth, nature excels in her operations, still it cannot be denied, that in many instances she requires a helping hand ; let us endeavour to shew, therefore, when such assistance can and ought to be administered. It is here worthy of remark, that the latin word which signifies a tooth, is an abreviation of another word, which implies chewing, (1) and which proves that the teeth have always been considered by the antients, as formed especially for that operation. The teeth are found in most animals which live upon solid food, and they serve naturalists for the purpose of classing them into herbivorous, graminivorous and carnivorous, and as man is endowed with all these different kinds, he is called omnivorous, that is, he is intended to eat of all. (*a*)

(1) *Dens quasi dictus edens.*

(a) An ingenious treatise has lately been written by Frank Newton Esq. in support of Dr. Lamb's theory, to prove that animal food is not the proper sustenance for man ; that it is not only useless, but tends greatly to shorten human life, and to induce diseased action ; he supports these opinions by an experiment made in his own house, for the space of four years ; the same experiment also having been made by Dr. Lamb's whole family. They lived entirely upon vegetables and distilled water, and the author says with the happiest effects, particularly in two chronic cases of disease.

This book is written with such ability, that I was induced to try the

When the mouth is opened the teeth exhibit themselves, under the form of two semicircular rows of little white bodies, hard and shining; in the adult they are thirty-two in number, sixteen for each jaw: the four in the middle are flat and cutting, they are therefore called inscisores or cutting teeth; from their connection with the four others of the lower jaw, which have the same name, there can be no doubt, that they are intended to cut, when they come in contact, like a pair of scissors. Upon the sides of these in each jaw are two teeth, which are more round and sharp, and which seem made to tear the aliment, like those of dogs, from which they borrow their name; (canine) they are also called eye teeth, because their root being exceedingly long approaches the eye nearer than those of any other tooth; they do not however communicate with that organ, and the involuntary tears which are observed to flow when one of them is drawn, are also seen upon the extraction of one

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experiment upon myself, which I did for the space of twelve weeks; rigidly adhering to vegetables and distilled water; at the termination of six weeks I had lost about twenty-one pounds in weight, and though weaker, was capable of moving quicker; after that period I gained a little in weight, and at the end of twelve weeks I had nearly regained my usual weight, but was decidedly weaker and had a slight cough. It would be foreign to my subject to enter further into this discussion, but my opinion of it is this, that although many people live in a healthy state without animal food, and perhaps this system deserves a trial in some chronic diseases and particularly cancer; yet, that the conclusion, that it always tends to shorten human life, is erroneous, and this opinion is corroborated by a knowledge of the structure of the teeth.

of the grinders; they are also called angular teeth, either on account of their form, or because being placed at each angle of the mouth, they regulate its extent: (*b*) more backward, and on each side of these teeth, are five others called molares or grinders, two small, and three large, whose office it is to grind the food, and have the same effect in mastication as the millstones have in a mill.

Nearly one half of each tooth is visible above the gum, and is called the body or crown, (*c*) the other half is partly hid in the gum, and partly in the alveolus or socket, or that cavity which is found in the most prominent part of each jaw. The root or fang is single in the inscisores and canine, often

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(b) We often see the canine teeth ignorantly drawn when they are irregular, instead of the first grinder; this is highly objectionable as it produces greater deformity, and is attended with more pain; besides these teeth often form a very convenient support for the attachment of artificial or natural teeth, should they be required at a more advanced period of life. When these teeth have been irregular I have always drawn the first bicuspis, and have invariably found that the canine has descended into its place, especially when aided by an occasional pressure.

(c) In the cabinet of natural curiosities, at the Jardins des Plantes may be seen a most perfect arrangement of the teeth, exhibiting their progress from a foetus of four months to old age; the arrangement of all the objects of natural curiosity in this immense dèpôt is most admirable, and perhaps no where can natural history be learned with greater ease and expedition. I cannot forbear expressing my gratitude to Mons. Royer, who in a most obliging manner shewed me every part of this grand establishment; the only thing I had to find fault with was the evaporation of the spirit from the moist preparations; no bladder being used: I was informed that Cuvier was obliged to renew them every two years!—if I am not mistaken they are much better preserved in many of our London Museums.

double in the two small grinders, always double in the lower large ones, and triple in the upper large ones. These fangs render the teeth very firm, and they are made still more solid by a number of fibres, which firmly unite the fang with the sockect and the gum, unless this fine harmony have been destroyed by disease. It is to this solidity that we must attribute the success of those feats of strength, which some men perform, unaware of the direful consequences; holding with their teeth the heaviest burdens: I have also shewn in my dissertation on the accidents arising from the extraction of the teeth, some fatal events which (*d*) I suppose resulted partly from this organisation.

We cannot be surprized that men who have not studied the laws of the animal economy, should have regarded the teeth as inorganic bodies, without life, and consequently capable of resisting the most destructive causes; from this circumstance arose no doubt the ingenious fable, which represents Cadmus as giving birth to men, by sowing the teeth of the dragon which he had slain.

The sensibility of the teeth, however ought never

(d) It is rather surprising that some persons should be found so ignorant of their own interest, as to trust the extraction of their teeth to the most ignorant mechanics. I have in my possession, three of the grinders with a large piece of alveolus, which were extracted instead of one, (by a blacksmith,) from a poor woman who lives in Grey's Walk; a most violent hemorrhage was the consequence, and she was confined to her bed for several days.

to have permitted a doubt of their being organised; whether they be composed of a peculiar bony substance, as may be observed by inspecting their internal parts and root, or whether the crown is inveloped in a transparent covering, as if vitrified, called enamel, the hardness of which is such, that it resists the action of fire, more than the osseous substance which it covers, and from which one might even draw sparks, either by striking it with steel, or filing it in the dark. The growth of the teeth and their piercing the gums, could not take place without this vitality, which is peculiar to them, and which continues during life; for even when the alveolus or socket is destroyed, they are still attached to the gums by certain fibres. This vitality, which is in connection with that of the whole frame, is not confined solely to that soft and very sensible folicle contained in the cavity of the teeth, which extends from the centre of the crown, to the extremity of the fangs; the hard parts also partake of it though in a much less degree: and in both cases it is supplied by the arteries, veins and nerves; these vessels being distributed over all the face, and communicating with each other, keep up a constant and admirable sympathy.

As every thing in nature is formed by degrees, so the teeth are not hard at the first; but soft and pulpy, and resemble in man, that tooth which the *bon-vivant* wishes to find in a calf's head. It is a kind of germ which developes itself, and gradually becomes harder, rises and penetrates the gum, and at

length arrives at that perfection in which it is generally found; in the same manner a young tree sprouts, penetrates the earth, and arrives at its full growth, while it shoots out its roots towards the soil, from which it derives nourishment: while in its tender and delicate state it is not exempt from irregularity, but requires the friendly aid of the gardener; so the teeth grow in a healthy and vigorous child, but take a direction streight or oblique, according to their primordial situation, or according to the form of the jaw, and therefore often require the superintendance of art, to ensure a beautiful arrangement.

Wise in his ends, the Author of all things has placed and distributed in the thickest part of each jaw, two rows of germs or follicles, one above the other; one of which is destined for the first moments of life, the other for an age more advanced, from which we have this great and beautiful work of nature, which is usually divided into two parts, under the names of the first and second dentition.

If the orator to whom Rome had the honour of giving birth, compared the teeth to the chords of a musical instrument for the purpose of modifying the sound of the voice; if in order to speak the jewish tongue with more grace, St. Jerome caused his teeth to be filed; if they serve physiognomists with the means of calculating the probable longevity, and moral character of man, and if they form one of the greatest ornaments of beauty, the parasite in his

turn only esteems them for one function more important, in which he puts those organs into action for the purpose of dividing and grinding his aliment, which forms the object of his delight; the freshness of his appearance, announces his having masticated well, and consequently the degestion has been perfect; which seems to verify an adage used by the arabian physicians, " he who does not masticate well, is an enemy to his own life." (1). It is in vain, in order to sustain a contrary opinion against the necessity of having good teeth, to say that there are some individuals, totally without teeth, who can eat the hardest crusts, who have the voice distinct although weak, and who exempt from the wrinkles of old age, have some of the graces of infancy, to which state they approach in so many respects; these are beings who are peculiarly circumstanced, they may be compared to those men, who never having worn shoes, find the soles of their feet so hard and callous, that they have no fear of walking upon the shapest bodies. But were we to ask these happy people who have lost their teeth, at what price they have purchased such advantages, how many privations and pains would they have to complain of. Let us rather turn our attention to those young mothers, whose teeth have been neglected by their parents

(1) *Illum qui non benè masticaverit, animam suam odisse constat.* Diss. de curâ dentium ad sanitatum profiscua. Halæ, 1752.

and who are consequently attentive, that those of their offspring should be sound and beautiful. (*e*)

(e) It is from the age of six years to that of fourteen, being the usual period of the second dentition, that the teeth require the greatest care; when there is any disposition to irregularity, they ought to be inspected once or twice a year by the surgeon or the dentist, who can in almost all cases insure a regular arrangement.

CHAPTER II.

Of the first Dentition, or Milk Teeth.

Although in general dentition is only considered as an operation by which the teeth tend to pierce and traverse the gums, in order to arrange themselves in their places, yet we cannot dispense with the necessity of considering it in a more extended point of view. The teeth, as well as every other part of the body, begin to exist from the earliest moments of life, even in the fœtal state; they are developed by degrees, and regularly acquire their growth, while nature follows her proper course, and when she is interrupted, they partake of the disorder. Hippocrates was the first who remarked that the health of the child was conformable to that of the mother. (1) A truth, according to which we cannot doubt, that when a pregnant female is afflicted with a serious malady, the germs of the teeth of the child will receive an injurious impression; hence that delicate texture and want of uniformity that we find in some teeth; hence that disposition

(1) *Ut valet mater, sic se habet puer.* Lib. de naturà pueri.

to caries, and hence also that source of pains which is so often experienced. Mothers who would avoid communicating those evils to beings who merit from you the tenderest caresses, regard as good advice this observation of the father of medcine; let the child that you nourish enjoy its effects; he shares with you in all your sufferings, both physical and moral; avoid therefore all those causes which may injure your health, but if by an unforeseen stroke, it should have suffered, let medicine afford a prompt relief.

The child being born, the nourishment destined for him, proves that he has no need of teeth during the first year; it is true, that infants have been born with one or more teeth, this was the case with a great monarch, (Louis XIV,) (*f*) in whom the presence of a tooth at his birth seemed the presage of his future greatness; Polydore Virgil, also mentions a child, who was born with six teeth; but toward the of end the first year is the most usual time for the teeth to appear, and about the thirtieth month they are all cut, to the number of twenty; they are called milk teeth, either because they cut while milk is the only nourishment, or because they equal that fluid in whiteness; they are also called primitive, or casting teeth; they are ten in number in each jaw; four of

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(f) I saw a child a few weeks ago, which was born with a front tooth: it was shewn me by Mr. Price, Surgeon, the tooth, which was full grown was extracted.

which are inscisors, two canine, and four grinders; the incisors of the lower jaw appear first, then those of the upper jaw, afterwards the canine, or more frequently the grinders.

Every thing here appears to be for the advantage of the infant; an interval of a month or six weeks, between the cutting of each tooth, seems consecrated to calm the irritation, which generally accompanies this evolution; for it is rare to cut these teeth, and particularly the canine, without a swelling in the gums, heat of the mouth, salivation and redness of the cheeks. This is the way that dentition usually proceeds; sometimes it is so calm and easy, that the tenderest mother has no reason to fear, while at other times it is so laborious, and attended with so many accidents, as to put the life of the child in danger; in this latter case whatever be the cause, the effects are sufficiently obvious; they have been observed from the earliest times, and almost in every country, and accord with the observation of Hippocrates, "Those" says he, "whose teeth are on the point of cutting, are affected with itching of the gums, fevers, convulsions, diarrheas; especially in cutting the canine teeth, and in those children which are fat, and of a constipated habit of body." (1) To add to this picture, would be to augment that dread

(1.) *Ad dentitionem verò accidentibus gingivarum pruritus, febres, convulsiones, alvi profluvia; et maximè ubi caninos dentes producunt, et iis qui inter pueros sunt crassissmi, et qui alvos duras habent.* Aphor. sect. III. 25.

of dentition, which sensible mothers feel but too acutely at present; without being able to foresee, or to combat those causes, which often render it violent and sometimes mortal. But to dissemble or to say that dentition is never difficult and perilous, would be to consign too many mothers to a perfidious security, and one day they would have but too much reason to complain of this silence.

In vain do we hear it said in some parts of Germany that it is wrong to attribute accidents to dentition; in vain have these opinions been re-echoed; they cannot prevail against that which the scythe of time seems to have respected. Experience the most invariable has confirmed the saying of antiquity upon the disorders of teething; the most celebrated professors of anatomy, surgery, medicine, midwifery, and the dentist's art, have arranged themselves on the side of the oracle of medicine. The celebrated society of Naguère, has also put its seal to this antient truth, by asking, *what are the surest means of preserving children at the breast, from the accidents of dentition, and of remedying such accidents when they occur?* and especially in crowning several physicians who answered this question, and among the first of these was M. Baumes; is it necessary to add to these authorities that of a young adept, who in his act of doctorial inauguration at the university of Iéna, was not affraid to combat, and to repel the doubts that some attempted to raise respecting the effects of dentition? he observes,

that the authors of these doubts resemble those innovators, who when they wish a received opinion to be rejected and despised, proclaim it erroneous, while they themselves are in error. (1) A celebrated professor of Vienna, (2) has also lately taught his pupils that the evolution of the teeth is attended with a diseased state of the system, as is the case in the falling off of the hair, and the shedding of the horns of different animals.

But why should we not compare dentition to those other operations of nature, which in man sometimes follow a regular and benign order, while at other times, they are attended with extreme disorder. Such are among others the different steps which conduct to *maternité*, the dangers of which we have too often to dread.

From these observations, supported by so many authorities, there can be no doubt that dentition is sometimes difficult, painful, and accompanied with many accidents: the maladies with which mothers are afflicted, during their pregnancy, contribute to it, which is one reason why they should be remedied as promptly as possible; but there are other habits of

(1) *Verùm etiam culpandum jure meo censeo accusatorem et spretorem receptæ opinionis, qui novatorum more, dum interdum fefellerat, eam ideò semper falsam et vanam esse jactita* Lud. Wol. Wagner, disputatio inauguralis medica de dentitione difficili à dubiis clarissimi Wichmani vindicata; Ienæ 1798.

(2) *J. P. Frank, de curandis hominum morbis epitome juxtà ejus prælect.* Liv. VII, de nevrosibus, sect. I, or III.

life, which if not guarded against by mothers and nurses, although their health may not be affected in a very sensible manner, will nevertheless exercise over that of the child, an influence as prejudicial as actual disease, and which may also affect dentition; hence the necessity of warning them against the use of succulent aliments, spirituous liquors, the privation of sleep, a soft and luxurious life, the agitations of the passions, anger, melancholy, &c.

But without attributting the cause to the mother or nurse, the evils attending dentition may depend on the constitution of the child, and on the diseases with which it is affected; several experiments made in 1740, by Bunon, and since by Mahon, as well upon the living as the dead body, have established this truth, beyond doubt; and the dentist has often occasion to remark, that the enamel of certain teeth, both primative and secondary, shew defects of conformation, the true cause of which is to be found in the impression which their germs have received from disease; these defects, are sometimes in the form of little holes, at other times we find one or more transverse grooves more or less deep, which resemble the marks made by a chord upon a soft substance; sometimes it is a kind of projection of the osseous substance, which has taken the place of the enamel in various parts, and which is always yellow. It is not rare indeed to see the crowns of the teeth as if covered with marble, in consequence of the yellow and white spots, with which the ena-

mel is studded. It generally happens in those defects, which exist prior to the cutting of the teeth, that the enamel is very thin, and sometimes it is entirely wanting, as I have observed in a great number of teeth, some of which I have deposited in the Cabinets of Anatomy, of the Faculty of Medicine of Paris; which led me to regard this primordial defect of the organs of mastication, as a peculiar kind of atrophy or want of nutrition. Besides these defects, the teeth by the same cause, may have acquired a want of solidity in their component parts; those which are of a blue white are of this kind, as well as those which are yellow, and have some resemblance to burnt horn: (*g*) almost all these kinds of teeth, injured in their first principle, have a greater susceptibility of pain and caries.

The knowledge of all these facts, acquired by observation, have enabled us to discover, that the teeth of infants, are altered in their shape and conformation, by various diseases, as well as by peculiarity of constitution. Leroy in his *Traité de la Médicine maternelle;* to these same causes attributes the retardation as well as the disorders, of dentition. "It is retarded" says he, "if the child is weak, and born of

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(g) When the enamel is perfect, it is so hard, that upon exposing it to the action of a grindstone, (such as dentists make use of) a stream of fire will issue from it; and it is capable of destroying, in a very short time, the hardest Lancashire files; one of which is equal to five of the Sheffield files.

debilitated parents, and if he have received an insufficient nourishment," he observes also that certain morbific causes in the mother or nurse, may facilitate its progress; he might have added that certain diseases in the children produce the same effects, as may be observed in rickets; where the growth of the head and parts which depend upon it, is almost always too rapid; and the teeth, as this physician judiciously observes, resemble those too early flowers, whose duration is always fleeting. The sensibility of the gums, and the soft parts of the mouth, whose source lies in the expansion of an infinite number of little nervous branches which are spread all over the face, is not the same in all infants; it is greater in those which are sanguine, full, and nervous; than in those that are pale, debilitated, and whose flesh appears bloated and soft; thus we see the teeth of the former, cut with pain, while those of the latter, cut slowly and without too much sensibility; hence the refusal which the former make to all aliments which have any solidity, and to the introduction of a finger into their mouth.

Since it is notorious that dentition experiences so many obstructions, parents should not rest in a state of perfect indifference, with regard to the disorders of their children until the teeth have all cut. It is important, in general, to arrest the course of these disorders as quickly as possible, but there are some however, which should be regarded as benign efforts of nature; among these we may reckon, the flow

of saliva, when it is not excessive, diarrhœa, eruptions, running behind the ears, and the scald head; they seem to relieve the teeth of an acrid humour, or to diminish the irritation which accompanies their growth, and their cutting. Here maternal solicitude, might be converted into a sentiment of fear, were it not promptly relieved, by the experience of the physician, the surgeon, or the dentist, who is not ignorant of the great principles of medicine.

In the mean time, it is important to observe, that it is by no means rare, to see the effects of dentition, confounded with divers other infantile maladies; whether they have their seat in the mouth, or elsewhere; the treatment of the one, is attended to, while that of the other, is neglected; the means are without success, the child dies, and registers of decease, attest the fatal event, under the title of dentition. If we consult the tables of mortality in the towns and villages, the number of the victims of dentition, will certainly appear appalling; and they are always found to be more numerous in the former, than in the latter.

Happy villages! your industrious inhabitants, with usages as antient as their manners, raise their little ones in a manner more conformable to nature; they do not offer in their cares, the spectacle of that refinement, which the mothers of the city, with more appearance of sensibility, have drawn from the theories of education, which do not acknowledge experience for their base. We must not however con-

found in this class, a number of writings drawn from the distinguished practice of their authors; among which may be reckoned those of Desessartz, (1) and of M. Friedlander. (2) The principles which point out the means of promoting a better constitution in man, are there solidily established, and will always be found useful in rendering the mouth agreeable, and in promoting the stability of the teeth. These writings dictated by observation, have been of great utility to me, in my researches in developing the advantages and disadvantages which dentition may receive from the different modes of education.

The first cry of the infant, which every mother is anxious to hear, is occasioned perhaps solely by the action of the air upon its body; or from the sudden transition from heat to cold; although the first effects which result from this transition, may be necessary to the new born babe, it does not follow that we ought to promote and augment them by means repugnant to nature; and of which she never fails to advertise to us. This all watchful parent, averse to cold, seems to require warmth for all that lives; by that the plants germinate, grow, blossom, and bring forth fruit; without heat the fecondated egg would never develope itself, the animal newly hatched would become languid and perish; in aid of which we see the industry of animals exerted for their little ones;

(1) Traité de l'Education corporelle des enfans en bas âge, 8°, Paris, 1799.

(2) De l'Education physique de l'homme 8°, Paris, 1481.

they endeavour to shelter them from the inclemencies of the weather, and if they should not have prepared a place to modify its effects, their bodies supply the deficiency, and seem to nourish that principle of life which the antients compared to fire. This fine example should not be observed in the letter only, but by all those means that tenderness inspires! If then man, as Alphonse Leroy observes, possesses every where the instinct to cover himself with cloths, and to procure fire to defend himself from the cold; ought we not to conclude that a new born infant, waits from those who surround it, to be inveloped in swaddling cloths, moderately warm; (1) always observing, to avoid interfering with the movements of the chest, and of confining the lower belly too much, and particularly with stays; the folly of which has been proved by an experience too dearly bought; for by this cause the viscera which these great cavities contain, never perform their functions perfectly; the circulation of the blood is retarded, in consequence of which it becomes too active in the head; and the predominence of this vivifying fluid, always greater in the infant than in the adult, may easily be calculated by comparing the head of the child with the rest of the body; and we always find dentition more advanced in children, whose head is very voluminous.

(1) . . . *Tenerum infantem tepidis involvite pannis.* SCÆVOLÆ SAMMARTHAMI, *Pædotrophiæ, lib.* II.

The desire of seeing men accustomed to support the variations of the seasons without inconvenience, is certainly well founded; but is the course of the first moments of life, the most proper for the gratification of this desire? and are those precepts which recommend the keeping children habitually naked, or covered only with the lightest vestment, conformable to nature, and observation; a comparative examination of the bills of mortality, of people who have received this kind of physical education, and among nations who are strangers to it, do not yet appear to have resolved these questions. Let mothers who have followed these principles, come forward and bear a true witness of the effect of their punctual execution upon their little ones; let them tell us if these dear objects of their tenderness, immersed in cold water, with a body meagre and dry; with a wrinkled and discoloured skin; have not excited their disquietude more than once, in the time of dentition? A fibre hard and parched, such as it is in that state, cannot easily yield to the growth and cutting of the teeth; and the developement of the jaw bones being interrupted, new obstacles arise which operate against the proper arrangement of the teeth.

The air alone does not suffice, for the authors of this frigorific education, they even recommend cold water, which they support, by offering the example of Achillis, who when newly born, was plunged into the icy flood of the Styx; besides they observe that the Gauls, the Negroes and the Lapons, accustomed to

this usage, invite by their strong constitutions, a trial of its good effects; the advocates of the cold bath however seem afraid of adopting it without some restrictions. Thus the author of *Emile* observes, that for children who are born of weakly parents it is necessary to commence by washing them in tepid water, and, to make it very gradually colder; Underwood, the author of a Treatise on the Diseases of Children, recommends that weak and delicate children should never be put into the bath, until the water is a little warmed, and gradually to diminish the heat of the bath; can so much foresight be the effect of sensibility? Nature in the mouth of an infant immersed in the cold bath, has a language so true and so powerful! have its cries then inspired these authors with fears of the consequences of cold immersion for new born babes? They shew none, when they disorganise the cutaneous system, whose functions are of such vast importance to the health. To accomplish their ends, one would be tempted to believe, that they wish by virtue of cold baths, to change the nature of man, by rendering his skin hard and scaly; as M. Marcard has observed in his Treatise on the Nature and Use of Baths.

The hardness of the skin being an obstacle to the insensible perspiration, we cannot be surprised at the yellow, pale and livid colour, that Lefebre de Villebrune (1) says he has seen in many infants,

(1) See his excellent translation of Dr. Underwood's Treatise, part II. chap. IV.

which were obstinately immersed by their parents into the cold bath. "But what is of importance to our object to remark," says this translator "it is especially in dentition that this effect manifests itself, by the putrid stools, which the little patients part with, and of which they become the victims." May I be permitted to add with M. Marcard, that if the effect of the cold bath, by acting upon the nerves, is to remove affections of the nervous system, it may also give birth to others; Hippocrates and Galen have observed, that convulsions have been the consequence; and what period of life seems more favorable, to their production, than that in which the labour of dentition is performed? "Of all ages," says the father of medicine, "no one is more liable to convulsions than that of childhood." (1) It is not sufficient to say therefore, that delicate children sink under the use of the cold bath; for those who are strong and vigorous, are not always exempt from falling victims, particularly at the time of the evolution of the teeth. It is more than thirty years since M. Bandeloque published this truth, as well in his course of lectures as in his writings; such an authority ought to have some weight, in making us renounce so pernicious a usage.

I have often seen persons of different ages suffer pains of the teeth, by having cold, or wet feet; I have likewise known children have the locked jaw,

(1) *Pueris verò convulsiones impendent.* Liber de aëre, locis et aquis.

pains, inflammation, and abscess of the glands of the neck, and in the neighbourhood of the teeth, by exposing the head to the cold air; especially when there was a running of the ears previous to the exposure. These facts are doubtless sufficient to shew the dangerous and injurious tendency, of keeping the feet and heads of children habitually uncovered, and of washing those parts, as well as the ears, with cold water, besides as the growth and cutting of the teeth, keep the mouth and surrounding parts, almost always in a state of irritation, we cannot hesitate to believe that the use of these cold applications, will augment that irritation; and render the maladies with which children are affected at that time more frequent, such as runnings, apthæ, abscesses, grangrenous ulcers, disorders of the throat of all kinds, and perhaps more particularly the croup. It has been remarked, that this cruel disease which speedily suffocates the little sufferers, was endemic or peculiar to Scotland: and it is observable, that the Scotch plunge themselves and their children into cold water, even in the depth of winter.

From what has been said we must not conclude, that during the time of dentition it is necessary to smother the child with heat; there is a medium to be observed in all things, and the best cease to be good when they are abused; the growth and cutting of the teeth, require an augmentation of vital force, the action of which keeps up the heat; every thing that can augment that heat, therefore must be con-

trary to the intention of nature. It is by throwing combustibles upon the fire that its strength is increased, and to give it fuel is not the way to extinguish it. To clothe a child as much as is requisite to shelter it from the sudden impressions of heat and cold, is what nature demands for an easy dentition; every where she offers us the example. Let us endeavour rather to imitate her, than to believe that we can do better, and leave to the English to make their children walk barefoot, according to the advice of their writers Locke, Floyer, Hamilton and others; it is in vain here, to invoke the witness of Rousseau; his eloquence cannot prevail against a just knowledge of the ánimal econǫmy, and against the solid reasons of medical experience. In rejecting the use of the cold bath, however, we do not mean that the hot bath should be used; nor that children should be kept in an atmosphere heated beyond the temperate degree, for this would only serve to render them more susceptible of disease.

Tepid water should be preferred for washing the infant: such is the opinion of the most distinguished practitioners, among whom we have professor Bandelocque: a bath of a moderate temperature cleanses the skin from every thing that is injurious, opens the pores, facilitates the insensible perspiration, and above all, the absorption of this aquous fluid, does not a little contribute to render the fibres supple; this suppleness is necessary to growth, of which dentition forms so important a part; and which serves

females at a more advanced period, to twist themselves so many ways, in order to preserve the graces of infancy. The growth of the teeth then, will be facilitated by the use of the tepid bath: it is not however necessary to have recourse to it every day; a plant which is perpetually watered, will not thrive better, and will not be possessed of its proper qualities. Let the infant be bathed at intervals; the most favourable time is, when the skin is hot and dry, the bowels constipated, and particularly when the mouth emits burning exhalations; so long as dentition is not finished, the mouth is a sure guide for the use of the bath; for it is the central point of irritation until the age of fourteen, or fifteen; which is manifested by a corresponding degree of heat. The dfficulty which we experience in making children swallow liquids, is also a reason why we should have recourse to the bath; it supplies the place of drink, and thus contributes to allay irritation and heat. "It is by the use of the tepid bath" says Hippocrates "that we prevent convulsions in infants, facilitate their growth, and give them a fresh and ruddy complexion."

But though tepid water in the form of a bath (1) possesses so many advantages, we must not suppose that it has the same, when used as a lotion; the body

(1) *At pueri infantes per multum tempus aquá calidá lavandi sunt . . . . quæ facienda sunt, quò minùs convulsionibus tententur, magisque adolescant, et coloratiores evadant.* Lib. de salubri victûs ratione.

wet with warm water which soon cools, trembles and shivers; it should only be used for certain parts of the body, and never for the head, on account of its being covered with hair. This part should not be wet but by plunging into the water, for nature has done all in her power to shelter it from humidity; the insensible fluid which exhales from the scalp, and from the mass of hair which covers it, seems to prove its destination, by its oily quality. It is better therefore to brush the heads of children, or to comb them, when the hair increases with a dry brush; and, in order that no loose scurf or down may be left, to have recourse to a dry sponge, or a piece of flannel.

Many persons at the age of puberty, who have washed their heads with cold, or hot water, have had complaints in their ears, their eyes, and especially in their teeth; and infants do not run a less risk, even when the teeth are yet covered by the gum, for they are still liable to be affected.

If I had entered into certain details, upon the means best calculated to give to man more strength, and to accustom him from the earliest age, to support without risk, the changes of the seasons; it would exactly accord with my object, to demonstrate how far those means would be salutary or injurious to the developement of the teeth, to their cutting, and afterwards to their preservation.

It is likewise of importance to know, that the air, and all those agents which act upon the surface of the body, often render dentition laborious; so also

the food which is taken, may derange its progress: this will perhaps appear strange, if we consider that nature does not seem to have afforded the infant, whose teeth are not cut, any kind of aliment but a mild bland liquor, which is sweet and very nutritive, prepared in the breasts of its mother; it alone is suitable to the strength of the digestive organs of so delicate a being; but is the preparation of the milk always such as nature intended? This fluid may be altered by many causes, and doubtless participates in the quality of the aliment of the mother or nurse; and may be too stimulating, too heating, and what some will scarcely believe, intoxicating. It is well known that want of sleep, forced labour, and excessive sweats, alter its quality, as well as a too violent agitation of the passions, as anger, fear, &c. But what must be the consequence, when instead of this nourishment, (the most salubrious for the infant) an artificial one is substituted in which art has endeavoured to imitate the natural one, but which never possesses the same virtues? To how many dangers is the health of the child thus exposed; and consequently dentition; if it is fed, as I have seen more than once, with coffee, sweetened wine, and other liquors. If mothers will suffer their children to be thus treated, they need not expect the operation of teething to be rightly performed.

Much might yet be said, upon what is favourable, or hurtful to dentition, in the physical education of children; but as a great deal depends on the good

constitution and health of the child, a vigilent and tender mother will not forget, after what I have said, to pay attention to this circumstance, which so materially affects the evolution of the teeth; and like the lover of fine fruits, who causes his trees to be cultivated, she will take care to call in the aid of a skillful physician; he alone can safely direct her conduct, toward the object of her caresses; he alone can sometimes dissipate with a word, the inquietudes occasioned by its teeth; he alone, in short, can distinguish the symptoms attending dentition, from those of other maladies, especially when called to a well constituted child, which has always had good health until its present suffering; when its lips, eyes, and cheeks, are suffused with blood, the mouth burning, the gums painful, the breath hot, the saliva abundant, the stools green and frequent, the body continually agitated, or absolutely overwhelmed, the sleep either interrupted by cries, or lethargic; the cough almost convulsive with reiterated exacerbations; the vomiting and hiccup repeated every moment, the pulse at one time calm, afterwards heightened, and again depressed. But here let us pause, a part of this picture would suffice for our purpose.

This is the usual course, which nature takes during the first dentition; and if she does not always proceed with equal violence, during the second, it is because the physical powers are altered by age: before any of the teeth appear, there exist fifty-two germs, the developement of which requires more

vital force, and more nutritious juices, than when there are thirty-two; that is, after the cutting of the twenty temporary teeth, and so on in the same manner, until the last are cut; hence that progressive diminution of the circulation of the blood, toward the head in general, and toward the mouth, in particular; hence also the diminution of pain and irritation as the age advances. On the other hand, during the evolution of the temporary teeth, the child does not talk, or if it lisp, we have to guess at its meaning; and its finger, being put to the mouth, might lead us to suppose, that it is the seat of disorder, although it may arise from some distant part, for at this period almost every disorder, is attributed to the teeth, while other morbific causes are overlooked; on the contrary, at the age of seven and upward, the reiterated and piercing cries of infancy, are replaced by a language more expressive, and the teeth are no longer shewn for the body; nor the ear for the teeth; the sufferings are also diminished probably, because the sports multiplying with age, tend to attract the attention. It is not however rare to see from the age of seven to fourteen, and even when the wisdom teeth are about to cut, a fulness of the glands of the mouth; pains of the head, jaw, and ears, with copious salivation, diarrhea and fever. It is at this age also, that the difference between the cold, and warm bath, is experienced in a very sensible manner. I have seen children seven years of age, accustomed to the former, obliged to

relinquish them, for the mild temperature of the latter from which they have derived considerable benefit.

It may be asked, does the cutting of the milk teeth require the aid of the dentist? Certainly not; it is in general a benign operation, but there are cases in which maternal solicitude has need of counsel, and the physician as dentist, or the dentist who is a physician in this case, will shew what is requisite to be done; whether the bowels are too much constipated or relaxed, whether the fever is too high and of too long duration, and when there is such a degree of irritation, as may excite convulsions; he will recommend diluting drinks, as well for the infant as the nurse, the tepid bath, leeches behind the ears, or the promoting of a surpressed humour; such are the means, of which he knows how to make a proper application: it would be impossible for me to explain each case, wherein the remedies would be respectively applicable, a formidable error is always to be feared, therefore I shall avoid giving rise to one here. Let not mothers believe, that in order to remove the painful irritation of the gums, occasioned by the pressure of the teeth which are ready to cut, that it is proper to tear with the nail that part which covers them, for although lancing the gums (*h*) according to art, may often be

(h) Mr. Fox recommends lancing the gums very strongly, and says, that in no instance can it do harm, when judiciously performed; and

employed with success, yet ignorant nurses have often augmented the pain by it: a slice of lemon, or a little linen dipped in verjuice (or vinegar) by calming the irritation of the gum, renders its fibres more disposed to give way under the teeth, which push against them, and may therefore be used with advantage.

It is so natural to give to infants something to chew, that one is only embarrassed in the choice of what is best for that purpose; professional men find fault equally with those things that harden the gums too much, and with those which relax them. In general the mouths of infants heated by dentition, relish any thing that can cool them, and all bodies that they may happen to lay hold of, are appropriated to this use; from hence it appears that crystal, coral, or ivory, seem to possess some advantages; they must not be habituated however too early to chew these hard substances, for the gums being constantly compressed by them, will soon loose their suppleness,

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if the gums should heal before the teeth are cut, it is proved that a newly formed part will sooner give way to the process of absorption, and hence the passage of the tooth is facilitated,—he recommends a crucial incision, or too semulinar ones for the molares, to be made with a round edged lancet in preference to a pointed one; and in lancing the incisores, he recommends that the instrument should be directed on its anterior part, for by carrying it deep on the posterior part, there will be danger of dividing the membrane, which connects the pulps of the secondary teeth to those of the primary, by which the formation of the former may be injured.—

SEE FOX ON THE TEETH.

and will not be pierced by the teeth, without an increase of pain; in all cases it is prudent to suspend their use occasionally, and to substitute the root of marsh mallows, or of liquorice, or any other substance which may relax, or soften the gums, and diminish the irritation. A kind of coral, is now made of elastic gum, which has not the fault of either hardening or relaxing the gums; a thin crust of bread might indeed supply the place.

(*i*) With regard to the necklaces which are supposed to favour the cutting of the teeth, in almost all cases they can do no harm, if they do no good; from some of them perhaps an effluvia may escape, which being absorbed by the pores of the skin may tend to calm the agitated functions of the animal economy, and to keep up that fine harmony so necessary to dentition: those which are made with camphor, the root of piony, valerian and some other substances of a strong odour are of this kind; but for these few, upon which indeed we cannot place much reliance, how many are there which have no effect but upon the imagination of the mother or the nurse.

What exquisite delight a tender mother feels, when the last of the twenty milk teeth has made its

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(i) It is rather surprising, that an author who is addressing *la grande nation*, should condescend to mention these necklaces; for there are few English medical writers who would not treat the subject with ridicule, notwithstanding their supposed credulity.

appearance; the lovely smile of her infant, to which the presence of these teeth adds such a charm, is no longer mingled with disquietude; their whiteness and regular arrangement, are objects of her admiration, and already inspire a hope, that those which are to succeed, will possess the same advantages. Art is in general unnecessary in this state, unless pain and uneasiness shew us, that among these teeth, some one is affected with caries: as this tooth must one day be shed, it is our duty to precipitate that event, that is it should be extracted, if its presence produce abscesses, ulcers in the mouth, or if the repose is troubled by it; otherwise it may be left to nature rather than that we should teach a delicate being, the necessity of a painful operation, who will always be taught but too soon how to suffer. It will perhaps be asserted, that the caries of that tooth will be communicated to the permanent tooth beneath; but there is nothing to fear on that account; as it is prevented by the intervention of a partition, which is partly bony and partly membranous.

Many mothers are afraid of weaning their little ones, while they are *making their teeth;* such is their expression; that is to say in the interval which takes place from the cutting of the first milk tooth, to that of the last: in examining the laws of nature closely, these fears will appear to have some foundation; and also the opinion, that milk is the only proper nourishment for the infant, so long as it has no teeth, and we must conclude that it ought not to

be entirely deprived of this fluid, until it has all the instruments necessary to masticate solid aliments; this principle is incontestible; and it may be observed, that where it is disregarded, many infants are made to suffer, and dentition is rendered more difficult. If we also consider, that a child afflicted by the pain of a tooth ready to cut, refuses all other aliment, and seeks only the breast of its mother, where it finds, at the same time, both nourishment and certain relief for the irritation and pain of the gums, we cannot doubt that this is an improper time to wean the child, and the safest is to wait till all the first teeth are cut.

There are some cases, however, which seem to admit of the hardy enterprise of certain mothers who wean their children before they have cut a tooth, or while they have only two or four; as when the child is of a sound constitution, and of a good habit of body, contracted by a nourishment appropriate to its age, before it has felt the pain which generally accompanies the cutting of the canine, or grinding teeth; should its mouth become heated and the gums painful, cows milk alone, or mixed with gruel of oatmeal, rice, purl-barley, or other farinaceous subtances, may supply the place of its mothers milk, and thus will dentition frequently go on very well; but let not this example render mothers too bold, and let them recollect, that, it belongs to the professional man alone, to decide at what period it is most prudent to wean children with reference to dentition.

CHAPTER III.

Of the second Dentition, or Permanent Teeth.

Whatever be the reason, that the twenty milk teeth are not made to last through life, or by what mechanism they are shed may be difficult to explain, but we know that they make room for the secondary ones about the termination of the seventh year: the space which separates the primative teeth becoming greater, shews they are too small for the enlarged jaw; and by this defect of *rapport* they begin to have a less agreeable appearance. Soon the incisors begin to loosen and come out to make room for those which are to succeed them; afterwards the canine and molares suffer the same fate, nearly following the order of their cutting. About seven years are consecrated to this dental revolution. Oh admirable nature! who for this operation does not entirely, and in a moment deprive man of those necessary organs, but by degrees, in conformity to those laws which she has imposed upon herself, in the nutrition and growth of the body, which are performed progressively, regularly and never by starts.

Thus towards the age of seven years, the number

of the teeth is increased to twenty-four by the addition of the four first grinders; from the age of twelve to fourteen, there is an addition of four others, placed by the side and further back than these latter: and lastly, according to the same order of arrangement, four other grinders make their appearance, from the age of eighteen to thirty and upwards, which are called the *dents de sagesse,* or wisdom teeth. one scarcely knows why they should be called by that name, unless it is because at this age, the amiable folly of youth, seems to yield to a more austere reason. These twelve large molares, are neither cast nor renewed, hence, they are called permanent teeth, to distinguish them from those of *remplacement.* (*j*) I have now described the thirty-two teeth, of which the second dentition is composed; though sometimes we only find twenty-eight or thirty, especially in women, which is occasioned probably by some of the small grinders, having been extracted for the sake of the arrangement of their teeth; or because the large grinders having become carious soon after their cutting, it has been necessary to extract them; or sometimes in consequence of the non-appearance of the wisdom teeth: the absence of these latter, as well as of the others, may be occasioned by the alveolus, or socket being more or less stopped up by an osseous substance, as

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(j) This distinction is not made by English authors, but all the teeth, which succeed the tempory ones, are called permanent.

is reported in the *Bibliothéque de Médicine-pratique de Hufeland*; it may also be occasioned by an improper position, similar to that which is mentioned by the celebrated anatomist Albinus; this was a canine tooth, which was hidden in the substance of the upper jaw bone, in such a manner, that its crown was uppermost and its fangs lowermost. M. Marjolin has also deposited in the Anatomical Museum, of the faculty of medicine, a lower jaw, in which a large grinder placed across, is covered with bone.

Often consulted by parents respecting the cutting, the number, and the arrangement of the teeth of their children, I ought to enter into these details, for they should be informed that the jaws do not always possess all their riches; we read in the *Ephémérides des Curieux de la Nature*, that a magistrate and a surgeon of Frederickstadt had never any teeth but the grinders, and were left entirely without the inscisors and canine. Fauchart also mentions a child, of five or six years of age, the greatest part of whose teeth had not appeared, there only being a few in front: but what appears very surprising is, the fact of several persons having been totally destitute of teeth from their birth, several examples of which are given by different authors; Boxelli reports in his Medical Centuries that a woman had never any teeth, who nevertheless lived to the age of sixty years; and M. Baumes knew an hussar who had never cut a tooth. It may happen, that some of the milk teeth

may never cut, but only the secondary ones, as I witnessed in 1790, in the son of a Russian nobleman, Mons. le Conte de S—w, who was eleven years old; the two large milk inscisors of the upper jaw had never appeared; and the delicacy of his constitution might have given reason to apprehend that he would be deprived of these teeth for the rest of his life, if the swelling of the gum had not led me to believe that by augmenting the vital force of this youth, we should be fortunate enough to facilitate their cutting, which had been so long retarded: an appropriate regimen and bathing *(bains de marc de raisin)* produced the desired effect.

By an inverted order, nature sometimes preserves the milk teeth, and withholds the permanent ones; this observation is very important, as it may tend to render us cautious in having the temporary teeth extracted, unless there be a necessity: the fangs of these teeth are not absorbed, like those of the milk teeth in general, but remain, like those of the permanent ones, and retain their situation, but are slightly loose: among the numerous examples which have come under my observation, those of the small grinders have been the most frequent: thus there are persons who preserve these teeth even to forty years of age, who are astonished when they are told, that they have still the milk teeth: these teeth are generally more yellow, shorter, and more worn than the others. Among the varieties which the second dentition

presents, I must not forget the privation of an inscisor of the lower jaw from the time of birth; this was the case both in a father and his daughter, so that it appeared to have been hereditarily communicated. This fact is known to M. Foubert, physician to the hospital at Havre.

In other cases, nature is more prodigal, and gives much more than the ordinary number; many such examples having been furnished by anatomists: these teeth which should be regarded as supernumerary, are not always well formed nor well arranged, as I have had occasion to observe; sometimes they are conical, and are placed, either betwixt the inscisors or before or behind the spaces which separate these teeth; at other times they are regular and properly arranged; sometimes likewise we find these supernumerary teeth on the outside of the large grinders: but to see two rows of teeth, as in the son of Mithridatus, or three, as in Hercules, must certainly excite our astonishment: perhaps, we might be tempted to doubt these facts, and consider them only as fables, if in a collection of observations published at Breslaw, in 1772, and dedicated to the celebrated Haller, Arnold had not reported, that he had seen a child, aged fourteen years, who had seventy two teeth, thirty-two for each jaw, which were healthy and well placed in two rows, except the front ones, which were slightly irregular. From this excessive prodigality, we must not however conclude, that if we take away one or

more of the secondary teeth, others will replace them for the third time: the number of the teeth is generally fixed, but it is not exempt from those sports of nature which sometimes produce six fingers on each hand; they should no more be reckoned upon, than upon those new teeth, which at an advanced age, sometimes supply the place of those which have been lost: several eminent historians (1) have cited cases where persons of sixty, four-score, a hundred, or even a hundred and twenty, have cut new teeth; his is the emblem of a tree almost withered, which by an extraordinary effort, produces fruits and flowers, and then dies. Might we not engrave upon the tombs of these singular beings, the following epitaph: (2).

Here lies an old person once toothless and hoary,
Who renew'd all his teeth, and his health and his hair,
And then was cut off in the height of his glory,
After living two ages devoid of all care.

The secondary teeth, being larger than the temporary ones, require more space, so that when they begin to appear, a dread is often excited lest they should not take their proper places; and sometimes mothers who are acquainted with this difference of volume, or who recognise it only at the moment when the secondary teeth begin to shew themselves,

(1.) *Aristotle, Sennert, Cardan, Joabert Birtolin. Bacon de Verulam.*

(2) *Dictionnaire des Herborisans, au mot Hellebore.*

are much disquieted respecting their proper arrangement: but let them indulge a different sentiment, for nature is as attentive as grand in her operations! Every thing is here so co-ordained, that for the arrangement of the twenty teeth which replace the temporary ones, the middle or large inscisors encroach a little upon the place, which the first lateral or small inscisors occupied; these in their turn, upon the place of the canine, which, with the two small secondary grinders, fill up the space left by the two temporary grinders, which are always larger than those which replace them. At this disposition of parts, who is not struck with admiration? but we shall be still more so, when we learn that the jaw bone grows transversely, in order to make room for the permanent grinders, which are never shed, not only by increasing in size in that part which lies behind the temporary grinders, as the anatomists have published (1): but by developing itself equally in all its points, in such a manner that the sockets of the large grinders, and these teeth themselves, grow and become successively placed from behind to before, upon a part of the bone which is assigned to them, this phenomenon has escaped the observation of anatomists, and the dentists have blindly followed them. I have, however, presented a me-

(1) *John Hunter, on the Natural History of the Teeth, London,* 1771, *and Joseph Fox on the Natural History of the Human Teeth, London,* 1803 *and* 1806.

moir upon the subject, to the Society of the Faculty of Medicine at Paris (1).

It is this transverse growth of all parts of the jaw, which prevents the alveolar arch from remaining as narrow in adults, as it is found in infants; in consequence of which the teeth being easily and regularly placed, there results that fine organization which by its beauty, as well as its utility makes the charm of life when we are fortunate enough to retain it perfect. But nature, that beneficient mother is sometimes forgetful in her operations, and wanders from the path which the Author of all things has marked out for her; sometimes she gives to certain teeth an oblique direction, again she transports them to a distance from their proper seat; here they cross each other, or they are so turned as to present one of their sides; there we observe one which presses against the lip, producing excoriation; again we find a tooth planted in the middle of the palate, or on the posterior part of the lower jaw; so many varieties demand for youth, the solicitude of parents: the least shaking or loosening of the lower inscisors is the signal for watchfulness; *a coup d'œil* thrown upon the surrounding parts will direct our operations with safety; but there are cases, where, before these inscisors come out, or become loose, two others are ready to cut behind them, and their presence is

(2) *Bulletin de la facultè de mèdicine de Paris et de la societè ètablie dans son sein, anneè* 1811, *page* 192.

announced by the loosening of the neighbouring ones; in this case, those teeth which are intended to supply the place of the latter, even before they are cut, fill up the space which the two middle inscisors ought to occupy: and perhaps there will not be room for them to cut, without considerable difficulty, unless, in order to facilitate this operation, we extract the temporary canine teeth.

From the neglect of this watchfulness, and by leaving all to nature, almost all the disorders of these parts proceed. Frequently a foolish sensibility on the part of parents to avoid giving a momentary pain to their offspring, exposes youth to the most cruel sufferings, both physical and moral: we often see a young lady obliged to smile with restraint, in order to hide her teeth, ill arranged although they may be good; again we see a youth whose teeth being placed one over the other can scarcely be cleaned, and are therefore covered with tartar, which exposes him to the reproach of an unpardonable negligence; they both regret that their parents have not done all that they might, to ensure them the possession of such teeth, as they admire in others.

These considerations, the truth of which, every one may easily verify, evidently demonstrate the necessity of a frequent examination of the mouths of children, from the age of about six years to that of fourteen; upon these early attentions depend almost always the fine arrangement, as well as the preservation of the teeth. Thus under the hands of

a skilful gardener, the branches of a tree, will take a convenient direction, either for the purposes of utility or beauty; and as he lops off a branch which hinders the growth of another, so the dentist, in order that the secondary teeth may be placed with regularity, does not hesitate to remove a milk tooth when it becomes an obstacle: the graces which the mouth requires sometimes even demand of him the sacrifice of one or more of the secondary teeth; but in this unfortunate circumstance he takes great care to preserve those which are the most apparent.

The conformation of the face almost always determines the order of the teeth; when it is flat, and square, the jaw presents a *contour* almost circular, in which the teeth are planted with more regularity; on the contrary, when the face is straight and projecting in the middle, as if the head had been squeezed at its sides, the jaw presents the form of the extremity of an oval, and does not offer sufficient room for the arrangement of the teeth; hence we have mouths which seem to have a double row of teeth, if the dentist have not early watched the cutting of the incisors, or if he have not sacrificed secondary incisors, canine, or grinders. But whatever be the form of the jaws, when a tooth is out of its place it is usually called a gag-tooth, or wolves tooth; the extraction of which almost always appears necessary to the parents; but is it really so, and should art lend its hand? certainly not, a serious examination should always precede and direct this

operation; and more especially as all the teeth, or the greater part are generally renewed before a professional man is consulted.

If it be the middle inscisor of the lower jaw, which is on the outside, it should be extracted; one of the front inscisors should also be extracted although properly arranged, when one of the lateral inscisors is placed either before or behind; because this latter being longer and stronger, it will fill up the empty space better; with regard to the upper jaw likewise, we always preserve the middle in preference to the lateral inscisors. Those which are most frequently out of their place are the canine of the upper and lower jaws, the deformity which results from this deviation might promptly determine us to extract them if we were not aware that they are less susceptible of caries than the small grinders which are in contact with them, and therefore we ought to sacrifice these latter, and preserve the canine, which are more visible when a person laughs or speaks; for although at the first they may be far from the place which they ought to occupy, they will arrange themselves more readily when the obstacle is removed, especially if they are often pressed with the finger according to the advice of Celsus, a celebrated physician of the Augustan age. We should also take away one of the small grinders if it be irregular, which is however more rare, and less urgent with regard to appearance.

This is a general rule, dictated by experience

from which we should not depart but in certain cases, and we should always endeavour to leave the least possible irregularity; the success of its application never fails to produce astonishment in the minds of parents, and the highest satisfaction to the young subject, but in order to insure it, it is necessary that the dentist should examine and calculate upon the advantages of these operations; his observation upon the connection which subsists between the upper and lower jaw, will enable him to determine whether there is such a wrong position of the teeth, as is likely to prevent the desired arrangement; but if in order to replace a superior canine, which is out of the row, and which is retained by the projection of an inferior canine, he should venture to extract the small grinder, he would assuredly have the mortification to see the upper canine, whose position he would alter, obstinately retain its place, depose against him, and attest his want of experience.

It sometimes happens that besides the complete number of the teeth, there is one which appears to be supernumerary and out of the row; occasionally it is a milk tooth which stands out, and is pushed before the secondary one, which has replaced it, and which is properly arranged; in this case the primary one should be immediately extracted; sometimes the primary one retains its place, while the secondary one is behind or before; here also it is generally pro-

per to extract the primary one, if it have not been too long delayed.

But, we must not forget to observe its form, its colour, and its being worn, in order that we may not confound the tooth that we should extract, with that which ought to be preserved, which is very frequently done, (1) I say, if it have not been too long delayed; for if this deformity be not remedied at its commencement, we are obliged to have recourse to other troublesome operations.

Is it more adviseable to have the teeth closely pressed together, or to have them separated by slight interspaces? As each person has a peculiar mode of seeing and feeling, so opinions will vary upon this question. Doubtless the spaces which separate the teeth by forming a shaded ground, will add to their lustre and beauty; thus the painter sees the canvass grow more brilliant under his pencil, by a happy mixture of light and shade; are we then to conclude that the file should be used to separate those teeth which are in contact? Certainly not, replies the architect, the teeth form a kind of arch, the solidity of which is well known to depend upon the immediate contact of all its parts; certainly not, replies the physician, for the teeth being thus separated, cannot lend that mutual support against the

(1) *See my Dessertation upon the accidents arising from the extraction of the teeth.* Sec. I, p. ix.

shocks which they continually receive, not only perpendicularly, but also by the horizontal motion with which the lower jaw acts against its antagonist: it would be easy to satisfy every taste, but the useful should never give way to the agreeable; the latter is only like a flower, whose duration is often fleeting and transitory.

There are however cases where the teeth being so pressed against each other, that some one amongst them presents its edge, where it would be proper to have recourse to the file, in order to remove the projecting part, which will give the teeth an opportunity of acquiring their natural arrangement. But let not the desire of having fine teeth, render us too precipitate in performing this operation; not that I believe there is danger in filing them, a long experience has convinced me of the contrary, besides, if we consider that with this instrument, art is able to preserve those teeth, in which part of the enamel, as well as of the osseous substance has been destroyed by caries; if we reflect that the use of the file commenced with the christian æra, at which time two celebrated physicians contended for the discovery; (1) and lastly, if we examine those accounts which relate that among the African negroes, some give a conical

(1) *See my Historical researches upon the dentist's art among the Antients*, Paris, 1808, page 15.

form to their inscisors, (1) while others with most address, divide them in two (2) in such a manner that one might suppose that they had sixteen inscisors instead of eight, we can never doubt the safety and good effect of the file; but its use should be regulated by the age and health of the subject, otherwise certain bad effects must be attributed to art, which depend upon other causes.

Equal prudence should also be used in the employment of gold wire or silk, for altering the position of irregular teeth; the irritation, pain and loosening, which it is almost necessary to produce, shews the necessity of caution, as well as in the use of gold bars, and forceps which are sometimes used for the same purpose; art proposes the means, the dentist should weigh well the advantages and disadvantages, the success at the time speaks much in their favour, but how many have to complain, (though too late it is true) of having paid dearly for a few weeks of beauty.

It is not sufficient that the teeth are properly arranged, by the side of each other; those of

(1) *M. Cline a celebrated surgeon in London, has in his cabinet, the scull of a negro of Abyssinia, the teeth of which are thus fashioned, a drawing of which may be seen in the learned work of Mr. Fox.*

(2) *I was made acquainted with this fact by several inhabitants of colonies, and by a captain of a ship, who had performed the voyage to Guinea seventeen times.*

the upper jaw, have a special connection with those of the lower, the least deviation from which diminishes the beauty of their appearance, frequently renders their functions laborious, and may often tend to their mutual destruction. Thus the superior inscisors pass over the inferior, and imitate in their action the cutting of a pair of scissors; in general the more parallel they are when brought into contact, the more they communicate to the face the character of beauty; the source of which may be found divined in the fine ancient statues; but the head of a Circassian makes it evident, as we may easily judge by an engraving which M. Blumenbach has given, who posseses an immence collection of sculls of all nations. (1) The more the inscisors recede from that parallel line, the more they diminish the graces of the visage and of the mouth; we sometimes see a projecting chin, and the teeth both of the upper and lower jaw are turned inwards towards the tongue; and we sometimes find a white singularly disfigured, by the teeth projecting outwards, which is supposed to constitute the beauty of the mouth of a negro. Against these two deformities which proceed from the conformation of the jaws, art is not able to offer any sufficient resources.

Sometimes the inscisors of the lower jaw, pass

(1) *Collectionis suæ craniorum diversarum gentium*, Decas. III. tab. 23.

before those of the upper, which most frequently arises from the superior inscisors having taken an improper direction in cutting, which has not been early attended to; it may however, arise from a malconformation of the lower jaw, known under the name of *menton de galoche*. For these two kinds of deformity, we must not expect that art will be equally effective, especially after the teeth are renewed, and the eight large grinders are cut; there exists then between the corresponding surfaces of the teeth of the two jaws, a disposition which does not easily change, or if such change should be effected, disagreeable consequences may ensue: the most proper time is that when there are no more than eight secondary inscisors.

The first of these cases, which is nothing more than a deviation of the superior inscisors may be easily remedied, or rather arrested in its principle, when superintending the second dention of a young person, we perceive that the teeth are inclined inwards; for nothing more is necessary than a reiterated pressure with a finger or the tongue, to give them their proper direction: if it should happen that these teeth having escaped the watchfulness of the parents, are already so far advanced as to touch the posterior part of the lower inscisors, no time should be lost, in taking away the resistance which these latter oppose to the natural direction of the superior inscisors: we may without

fear, remove with a file the little eminences, which rise upon their extremities; the finger and the tongue will do the rest. But when by the carelessness of parents, or through a false tenderness, the deviation of the teeth has become so great, that they touch each other to a considerable extent, we should not succeed in an attempt to remove it by the file; but there is another method which has been employed with the greatest success; which consists in keeping those teeth asunder, so as completely to prevent their contact, by means of a plate of gold or platina, so bent, as to form a kind of groove, which is to be fixed upon one of the grinders: it is truly a gag, which nevertheless does not hinder mastication; during the first day it produces a little uneasiness, but aft wards it is scarcely perceived. By this simple expedient, aided by the finger or tongue, the proper arrangement is easily effected, and there is no fear of loosening the inscisors, which is often done, by acting directly upon them by any mechanical apparatus, however ingeniously it may be contrived; a d in this case the dentist only comes to the aid of nature, whom he finds shackled in her course.

With regard to the second kind of deformity, as it does not depend alone upon the deviation of the teeth, we ought not to flatter ourselves to be able to remove it by the means recommended above, I even doubt whether we should succeed by interposing be-

tween the upper and lower inscisors, a fixed point or inclined lever which tends to push out the superior inscisors: but even if we succeed for the time, in making the superior pass over the inferior, ought we not to fear that we may have paid too dear for a momentary privilege; for the pressure of these mechanical powers to produce the desired effect, together with the action of the lower jaw, may tend to loosen the teeth. I may add that in order to judge of these means, it is only necessary to examine attentively a slightly projecting chin, we shall easily discover that the alveolar arch, in which the inscisors and even the canine are planted, has taken a developement upon a parabolic line, greater and more prominent than that which is presented by the body of the bone. It is a fault in the primordial conformation, which differs very little from a similar one, which is sometimes seen in the upper jaw, where the alveolar arch is so increased, that it projects over that of the inferior, whereby the reciprocal action of the inscisors is prevented or rendered imperfect.

If art can be of any service in either of these cases, it must consist in facilitating the diminution of the dental arch by the extraction of an inscisor; but can we warrant the success of this operation, and at what age, and upon which tooth ought it to be performed? Let us use caution here, and rather content ourselves by rectifying certain deviated inscisors, which give the appearance of a projecting chin.

When the favourable time has not been seized for facilitating the due arrangement of the teeth, and the bones of the jaw have arrived at their full growth, it would often be useless to attempt to remedy the deformities of the dental arch; there are very few cases where the benign hand of art, is able to cause them entirely to disappear, and we shall be obliged to confine ourselves to the connection of those which are the most injurious, or the most disagreeable to the eye. If a tooth which is too prominent, wound the tongue or the cheeks, its point should be immediately filed: if by its length it presses upon, and injures its antagonist during the motions of the jaw; the file by removing this effect, will prevent at the same time the loss of the latter; and lastly, when a young person has some of his teeth longer than the others, which gives him a disagreeable appearance, we take great care to render them even, lest the proverb should be applied to him, *C'est Geoffroi à la grand'dent.*

When a person compares what is useful or injurious to the conformation of his teeth, to their cutting, and to their arrangement; how happy will he feel when he finds that nature has done all for him, or if he have found in art that relief, which her deviations required. Far different is he, whose teeth bear the marks of his parents' carelessness, and who by the caution which he evinces in opening his mouth, shews how much he regrets, that they do not re-

semble those, which a French poet of the sixteenth century has thus described. (1)

Dens non pas dents par-cy par-la semées,
Mais l'une et l'autre ensemble bien serrées;
Dens agencées luysans comme crystal,
D'une longueur moyenne et ordre égal;
Dens en grosseur et rondeur compétente,
Proportionnées en forme équipollente.

(1) *Blasons anatomiques du corps féménin.* Paris, 1550, in 16, pag. 15.

CHAPTER IV.

On the Cleaning of the Teeth.

When man is endowed with that which makes the first instrument of nutrition, and the ornament of the mouth; he should neglect no means which are calculated to preserve a gift so precious: if the advantages which he derives therefrom, did not impose the obligation upon him, instinct alone would remind him of its necessity; at every age of life, the parched mouth calls for refreshment, and pure water in this case is as useful as agreeable; thus we see man at the age of seven years, have recourse to this preservative, the benefits of which he experiences at a more advanced age, either after a disturbed sleep, or the fatigue of watching. Hence the custom of washing the mouth every morning, which is adopted by many nations, and has become the object of a religious precept among the Musalmen "to make the little ablution" says Turnefort in his Voyage to the Levant, "with the face turned toward Mecca, they rince the mouth thrice, and clean their teeth with a brush." This custom shews how highly the preservation of the teeth is esteemed among a people,

who formerly were forbidden, according to Menavius, to have a tooth extracted without permission from the emperor.

Let children be taught by their parents the proper degree of care necessary for their teeth; they generally imitate them even in their sports; here the agreeable lesson will be converted into a useful habit. Pure cold water may suffice for them, either used as a gargle, or applied with a piece of linen or a sponge. Why are not young people in boarding-schools accustomed to wash the teeth, as well as the hands before breakfast, forcing the water out of the mouth by the compressing of the cheeks, and condensing the air; this habit would certainly give a greater zest to the repast. (*k*)

There are sometimes certain yellow or black spots upon the teeth, which it is desirable to remove, and

(k) I believe this custom is adopted in many of our English seminaries, though I am of opinion, that where the teeth are irritable, and disposed to ache, the application of cold is injurious, as I have often seen the tooth-ache occasioned thereby; we should therefore recommend the water to be tepid, and particularly in the winter season: Dr. Sims, who is one of the oldest practitioners in London, relates that he was such a martyr to the tooth-ache, that he has been confined to his house for several weeks together by that malady, but after he avoided taking his food either hot or cold, he entirely escaped it; he was particularly careful not to take soup, or any other liquid of a temperature higher than 90°; he was induced to try this experiment by reflecting that heat expanded all bodies; when applied to a tooth, therefore, it would diminish its cavity, compress the nerve, and consequently induce pain; however defective this theory may be, the practice of endeavouring to preserve those parts in an equable temperature, will be found to be highly important.

which are not taken off by water, but more powerful means should not be adopted without caution, for the enamel does not reach its maximum of solidity, until the dental organization approaches its termination, that is until there are twenty-eight teeth. A kind of tartar as yellow as saffron, sometimes discolours these young teeth, but it is not injurious to them, and should not be removed; neither should those black points, or circles, which form upon the enamel, and to which they strongly adhere; although there may be other causes for their formation, yet the heat of the mouth, occasioned by the pain of the second dentition, often gives birth to them and accelerates their progress; if they are removed, they will be renewed in a short time after, and as those spots are more disagreeable than hurtful, we risk less by leaving them entirely, or removing only those which are the most apparent.

But there is a different kind of tartar, thick and yellow, which is found to incrust the teeth, especially in children, who having suffered from a tooth, have ceased to masticate on that side. Here doubtless we ought to remove it, otherwise its presence might render the mouth hot, the breath fœted, and produce apthœ or ulcers on the inside of the cheeks. About twenty years ago, I saw, in a military academy, these neglected ulcers pass into a state of gangrene, which, by being communicated to the gums, produced a caries, or destruction of the subjacent maxillary bone, and not only occasioned the loss of the

temporary teeth, but also of the secondary ones, which laid underneath; it easily comes off in scales, and leaves the teeth uncovered, which have a whiter appearance than usual, on account of the gums having been rendered redder. If, upon taking away the tartar, we discover a tooth carious, and which hinders the child from chewing on that side by the pain which it gives him, its extraction should not be defered; otherwise the tartar may again accumulate, and form other crustations, which will tend to injure all the teeth.

Nothing is more simple and easy than to rince the mouth every morning with water; but although this will suffice for the child, yet at a more advanced age, other means will often be necessary. It appears that the nearer a person approaches the period of his full growth, the greater is the disposition of the tartar to collect, which in some cases is soft and unctious, and in others as hard as a stone; the temperament, the mode of life, the state of the health, and the want of attention will vary its quantity. It is true, there are individuals who though they take no care of their teeth, never have them of a bad colour; there are others on the contrary, and they are the greatest number, whose teeth, after sleep, are agglutinated by a sort of mucous, which daily augmenting and hardening, is called tartar. It generally begins to form on the necks of the teeth; it also attaches itself to their bodies, and obscures their lustre; frequently also, and especially at a

more advanced age, it extends not only to the crown, but to the root, forming a uniform voluminous mass, to such an excess, that when the tartar causes them to come out, their natural form becomes so altered, that we should scarcely recognise them. These teeth incrusted with tartar, are like those which are found in antient sepulchres, or the fossile teeth of animals, which are discovered in calcareous substances. To avoid such a disorder of those organs then, it behoves youth to pay attention to their mouths every morning; for a total negligence might expose them to the reproach, which a certain poet thus expresses (1):

Thy teeth will then become,
Such as are seen to deck
The sculls of cemeteries.

Although want of cleanliness seems to facilitate this incrustation, there are circumstances, in which with the greatest care, it cannot be effectually prevented, an example of which is given by Berdmore (2): he relates that he knew a person upon whose teeth the tartar collected with such a rapidity, that although she brushed them twice a day, she could not prevent the incrustations from collecting and hardening at the end of six months, to the same degree as when she had previously applied to a

(1) *Ronsard. livre des Amours, No.* 132. *p.* 100.

(2) *A Treatise on the disorders and deformities of the Teeth and Gums. London*, 1776, *c.* 7.

dentist for their removal. In this case a disorder of the system, capable of altering the solids and fluids, may have given rise to it: Sabatiér in his Treatise on Anatomy, mentions a young lady who was fifteen or sixteen years old, who was of a scorbutic habit, and all her teeth were buried under a stony crust, which, pressing upon the gums above and below, had nearly denuded them. This illustrious surgeon caused the tartar to be removed as soon as possible by a dentist, in order to prevent the total loss of the teeth, and to relieve the distended gums which were in a very diseased state; this salutary advice was crowned with the most perfect success. Far different was the conduct of a provincial surgeon, who imagining that he had to operate upon a tumour which greatly swelled the cheek, enlarged the opening of the mouth by an inscision; this tumour however was nothing more than a mass of tartar which enveloped the teeth; he then attacked it with a hammer and chisel, and the piece was sent to the Royal Academy of Surgery, in 1789; where may be seen the teeth of the patient, and the error of the surgeon.

Water alone not having the property of restoring to the teeth that lustre which the tartar, &c. has destroyed, industry has endeavoured to supply its place, and science has sought to perfect the means of gratifying the self-love of all who would have fine teeth: hence the incalculable number of receipts for cleaning them mentioned by different authors, the

virtues of which they often boast of, without being assured of their innocence, as I shall have occasion to prove elsewhere. Each has endeavoured to create a dentifrice to his fancy, and all nature has become the inexhaustible mine. A thousand circumstances seem to have suggested the idea; thus the sight of a collier's teeth has given rise to the belief, that coal or charcoal has the property of making them white, and this substance being pulverized, is made to blacken the mouth of a pretty woman; while science which is often drawn away by the torrent of modes and caprice, has composed receipts of it: and who is not amused with the formula which the physician Bretounayau has given of it in his poem, entitled *the Cosmetic and the Illustration of the Face and Hands.*(1.)

> If you the charcoal of the virgin vine
> Which ne'er hath blossomed; artfully combine,
> With balmy honey; to your teeth apply,
> Their whiteness will the elephant's out-vie.

Charcoal as well as soot which appears to whiten the teeth of the sweep, is certainly a very repugnant dentifrice, but much less so than that which the Celtiberians used formerly, and the Spaniards even at the present time, (2) as the following anecdote will shew. It is related in a Treatise on the Teeth by B. Martin, page 65, that a young lady of the

(1) *See his works,* Paris, 1583, in 4to. page 102.

(2) *See the above,* page 20, note 48.

court, who had extremely white teeth, took great pleasure in shewing them, and was equally cautious in hiding that which made them so; but alas! the mystery was accidentally discovered; her precious dentifrice was found in a casquet enveloped in a piece of fine white paper; it was *ó chose merveilleuse! des crottes de chat sauvage.*

But enough of these dentifrices, which are as whimsical as disgusting; they are not in accord with cleanliness, which is always pleasing, and gives to life those charms which it is unnatural to seek for among the substances which have a disagreeable effect upon the taste and smell. It is much more suitable to have recourse to those only, which possess at once the useful and the agreeable. A spirituous and aromatic liquor, added to the water with which we clean the teeth, will make it combine better with the slime that adheres to the enamel, and will tend to brace and strengthen the gums: such are the *eau-de-vie, eau-de-cologne,* or the *odontalgic elixir* of my late father-in-law, Leroy, (*l*) which by facilitating the discharge of the salivary glands, give a freshness to the mouth, strengthen the gums, and thereby preserve the teeth; thus after the tears of Aurora, the star of day appears and shines in all

(l) Several spirituous and aromatic liquors will answer the purpose as well as those mentioned by the author, perhaps none better than rum or brandy; but on account of their smell, the tinctures, or spirits of wine will perhaps be preferred by some.

his splendour; a few drops of the elixir, or of any other liquor equally spirituous, will suffice to render the water aromatic; the mouth is to be rinced with a little of this several times, and the gums and teeth are to be rubbed with a little lint moistened there-with; (1) the tooth pick should be cautiously used to remove the pieces of food which sometimes re-main between the teeth: the tongue should afterwards be scraped, to remove the mucous, &c. with which it is covered, (2) and afterward an opiate is used, which is applied to the teeth with a kind of root, or a brush.

It is necessary to carry the root or brush, according to the length of the teeth, because then the hairs of the brush act as so many took picks, which glide between the teeth, and remove every particle of slime; while in directing the brush transversly from right to left, it only touches the more prominent parts of the dental arch, it is a tangent which only touches the circumference of a circle in a point, besides when the brush is thus directed, it tends to detatch that conical point of the gums which separates the teeth, adheres to them and forms their ornament and support. After using the opiate, it is

(1) *I prefer cotton or lint to sponge, which is apt to thicken and contract a smell, unless the greatest care is taken to keep it clean.*

(2) *The instrument which is used for this operation, is called a gratte-langue or tongue scraper; and is made either of whale-bone, ivory, gold or silver.*

usual to gargle with pure water, rather too cold than too hot, for the latter by relaxing and softening too much the tissue of the gums, may augment their sponginess; it is with these attentions that young persons may hope to have even to old age,

Dent blanche comme cristal, voire
Ainsi que neige, ou blanc yvoire,
Dent qui sent bon comme faict baulme,
Dont la bonté vault un royaume. (1)

In proposing an opiate for the cleansing of teeth, it is because we think in general an opiate composed according to chemical and pharmaceutical principles is preferable to powders; it contains none of those substances which injure the enamel and gums, which enter into the composition of most of the powders, and produce their effect even before they are detected by the organ of taste; some of them in whitening the enamel, alter its polish; others act upon the gums, hardening them in the same manner as leather is hardened in the process of tanning, by the combination of alumn (sulphate of alumnia,) and the astringent principle. Some will say that the teeth may be rendered white by cream of tartar, (supertartrate of potass) which is often disguised by being coloured and perfumed, hundreds of mouths can testify, that by its use the teeth are set on edge, and rendered incapable of mastication, without

(1) *Blazons du corps fémenin*, page 15.

considerable uneasiness. I once heard a lady complain that powdered free stone, did not remove the tartar from her teeth, but I hope there are few, who would wish to imitate her in the use of so improper a substance. With regard to the peruvian bark alone, or mixed with charcoal, substances which may be used with success against the putrid gangreen of the gums and mouth, the taste of the one, and the colour of the other, have certainly nothing very attractive, but their antiseptic property, perhaps deserves some consideration if they are kept almost constantly in the mouth: The tooth powders indeed the best prepared, although they may have certain good properties, yet some inconveniences attend their use, particularly when the gums are rather seperated from the teeth, for they insinuate themselves between them, and thus form a foreign body which should always be avoided. I have seen some ladies much dissatisfied, by imagining that their gums were affected with scurvy, because their edges were rendered violet by the presence of charcoal, which had insinuated itself, between the teeth and gums, at the time when it was used for cleaning them. (*m.*)

(m) There can be no doubt as the author observes, that many powders prepared by emperics, who have no knowledge of the laws of the animal economy, which often consist of gritty or acid substances, are highly injurious, the one acting mechanically and the other chemically upon the enamel; but a powder composed principally of Bark, Armenian Bole and Cinnamon, (as my friend Mr. Murphy observes,) may be used with great safety; and by applying a moderate degree of

Inexperienced youth should be informed that many of those powders which are proposed to him for cleaning the teeth, if they do not contain an acid, have frequently an absorbant property, and are desicative, and astringent, the effect of which is to astringe or bind the fibres of the gums, so that their action upon the teeth is destroyed. For a few which possess good qualities, there are many which are of a dangerous tendency: Plenk, a learned professor of Germany, observes, that those who strongly rub their teeth with hard and gross powders, soon destroy the enamel. The English dentist Berdmore, whose name I have already mentioned, wrote fifty years ago; he says, that in the space of an hour he took off the greatest part of the enamel of a tooth, by brushing it with a very hard brush, which was moistened and charged with a certain dentifrice.

The sages of antiquity were agreed, that extremes in every thing should be avoided, *ne quid nimis*: convinced of this truth, it behoves young persons not to use more force in cleaning their teeth than is requisite; in order to increase their polish, they should not endeavour to render them whiter than they are naturally: such an ephemeral advantage would be followed by regret, for not having paid proper attention to that disagreeable sensation which

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pressure with the brush, and washing the mouth afterwards with tepid water, I believe the effects mentioned by the author will not be produced.

gave the warning. In general, all the acids have the property of whitening the teeth, they act in the same manner as aqua fortis does upon marble, that is, by destroying its polish and its solidity: an experiment which every one might easily try, proves that the teeth are softened by being put into acid liquors, and that the earthy and calcarious part which constitutes their solidity, settles to the bottom of the vessel in the form of a sediment. It is by means of the acids in which the teeth are macerated, that anatomists have succeeded in discovering their base; Hatchet, Pepys, Berzelius, Fourcroi, and the celebrated professor of chemistry, M. Vauquelin, have also had recourse to the acids, for the purpose of analyzing the hard substances of the teeth. The antients were not ignorant of the injurious effects which acids have upon the teeth, the prophet Jeremiah (1) expressly says, that if we eat unripe grapes the teeth will set on edge; and Solomon, who was not unacquainted with the physical sciences, observed an analogy between the action of smoke upon the eyes, and that of vinegar upon the teeth; (2.) we must acknowledge then, that the edging of the teeth constitutes the first degree of pain, like the effect of smoke upon the eyes, and all the acids

(1) *Omnis homo qui comederit uvam acerbam, ohstupescent dentes ejus.* C. XXXI. v. 30.

(1) *Quod acetum dentibus, quod fumus oculis, hoc piger est iis qui eumdem emittunt.* Prov. chap. 10. v. 26.

produce this effect. Vinegar is not then the only acid which deteriorates the teeth by rendering them white; all acid substances which are capable of setting them on an edge have a similar tendency, such as sorrel, lemon-juice, cream of tartar, and particularly the mineral acids, in whatever form they are applied, and by whatever specious denomination they may be called: B. Martin (2) has remarked one hundred years ago, that the acids corrode and calcine the teeth, and in time they make them permanently yellow; he might have added, that having lost their polish, they afterwards become black. I knew a lady whose teeth had acquired the colour of horn, by the loss of the enamel, after having made use of an acid preparation for a long time, the dangerous consequences of which, by an express order, were publicly exposed in hand-bills in 1793, and by the Denmark Journals.

By what fatality then are the minds of men fascinated with those powders which have an acid base? It is like the charm of a fine flower, which only yields an agreeable odour, that it may more effectually strike a mortal blow at those who dare approach it. I am sorry to say, that even in our time, there are dentists who make use of these perfidious agents, for the purpose of cleaning the teeth. I am acquainted with several young ladies at boarding-schools, whose teeth have been cleaned by means

(1) *Dissertation upon the teeth*, page 69.

of a piece of wood moistened with these violent acids: their teeth were very white at the first, but being violently set on edge, became afterwards black and carious, thus presenting an example of the bad tendency of this detestable mode of operating. Let dentists who use those acids to flatter the self-love of a handsome woman, content themselves with the instruments which art has put into their hands, which when directed with address, never injure them; otherwise, the evil consequences of this practice as above related, will shew the danger of the *cosmetic*, and they will justly forfeit the public confidence.

If these truths should appear to some persons ill-founded, or of less weight than we believe they merit, we request them to recollect the lesson which has been given them by the cows, of which M. le Vaillant has given an account, from his own observation of their habits among the Caffres: (1) according to this illustrious traveller, when these cows have eaten herbs which have a sour taste, their teeth are strongly set on edge; to relieve which, they mutually bite each others horns, when they cannot find any bones: those persons then, after using acids to clean their teeth, will try from the example of these animals, to soften their effects by knawing their nails, and they will finish by biting their fingers. (*n*)

(2) *Voyage into the Interior of Africa*, vol. II. page 36.

(n) To bite the fingers is a French proverb, which signifies to rue, or repent of any thing.

Such brushes are generally used for the teeth, as would not be considered fit for the skin, without considering, that as they come in contact with the gums, they cannot fail to injure them; is the animal which furnishes the hair then, the wild boar, even after its death, as well as during its life, to be thus hurtful and dangerous to man! A fine soft brush should be preferred; for while it is sufficient for cleanliness, it possesses none of those inconveniences incident to hard ones; if there are certain cases where the latter should have the preference, it is for the dentist to determine, after an examination of the mouth; but in general youth should be circumspect in using them, if they would not have their teeth denuded and robbed of part of the enamel.

Certain alimentary substances which insinuate themselves between the teeth, soon corrupt and irritate the gums, as well as occasion fœted breath. Pieces of nuts, almonds, and such like substances, are the most hurtful; they should, therefore, be removed with a tooth-pick, and afterwards the mouth should be washed with water. The wine which Galen recommends, after having taken milk, or fat and viscid substances, does not accord with the present usages of society; but a little table-liquor mixed with water, will certainly render the mouth more agreeable.

When age has given to the hand sufficient experience, the tooth-picks, composed of gold or silver, may supply the place of the quill ones, which, however are always to be preferred; but it is necessary

to observe, that if either the one or the other get fast between the teeth, it should never be drawn out with violence, or by jirks. We have often seen teeth worn by the reiterated passage of needles, or pins of copper, which have impregnated the teeth in those places with particles of that metal. Whether an antecedent pain has rendered this friction necessary, or the pain has been the consequence of the friction, is uncertain, but the extraction of the teeth has been rendered more urgent. I recollect an accident which occurred, by substituting a knife for a tooth-pick, which shews the impropriety of the custom if it were not interdicted by social usage. I was consulted for a young person of the age of ten years, who had fractured an inferior incisor lengthwise, with a knife which she had introduced between that tooth and the canine. Not having suffered much pain till the third day, the governess of the school and the parents were not made acquainted with the circumstance until that period ; and it was not till the sixth, that I delivered her of her tooth, and her pain. The teeth which are often scratched and loosened in their sockets by little pocket-instruments, which some people think advantageous, offer a proof of the inconveniences which result therefrom ; thus when a person does not know how to avail himself of the use of arms, destined for his defence, we often see them turned to his destruction.

It is not a matter of indifference, to use without

choice and without precaution, every thing that is praised as a dentrifice: besides those things which must, from their nature, be hurtful to the teeth, there are others which may become so consecutively. Thus the leaves of sorrel, or of cochlearia, &c. kept in the mouth without washing, perhaps contaminated with the excrement of some insect, often occasions ulcers or swellings in the mouth or gums. Dr. Mizaud (1) has borrowed from Bocace (2) an anecdote which will add to the picture; less credulous than the doctor, every reader will consider it interesting. It is this :

Two young persons, Pasquin and Simone, were conversing together at the foot of a tree, which was situated in a garden, upon the properties of sage for cleaning the teeth; Pasquin even gathered some leaves of that plant, with which he rubbed his teeth and gums; but immediately became pale, lost his sight, his speech, and soon died: his face was swelled, and marked with black spots. Simone was accused of having poisoned this young man; when brought before the judge, she clearly explained to him by going to the foot of the tree, how the leaves of sage had been used by Pasquin, and illustrated it by rubbing her own gums with the same plant; but how great was the astonishment, when the same

(1) *Memorabilium utilium, ac jucundorum Centuria prima.*

(2) *Le Décaméron,* Nouvelle XXXVI.

effects were immediately seen to ensue, and she died. To prevent a similar scene, the magistrate ordered the plant to be pulled up and destroyed, believing it to be venomous; and there was found among its twigs an enormous toad. It was, therefore, believed that this animal had communicated a pernicious quality to the leaves of a plant among which it delights to live.

Whatever be the origin of this account, it may serve as a lesson to those who hold in their mouths, either for their teeth, or for any other purpose, certain substances, whose pernicious tendency they are unacquainted with; and though they may not expose them to the fate of the lovers of Bocace, yet they may produce an affection of the mouth more serious, inasmuch as it may terminate in a tedious malady. All Paris recollects the history of a soldier, who some years ago being in the elysian fields, and amusing himself by chewing a plant, with whose virtues he was unacquainted, was affected in such a manner as to occasion his sudden dissolution.

The necessity of washing the mouth is experienced in almost every derangement of health, but especially after vomiting; for the teeth are so violently set on edge thereby, as to call loudly for a remedy, and nothing is more efficacious than ablutions of water, rendered slightly spirituous and aromatic; it possesses the double advantage of removing the disagreeable taste, and of cleansing the teeth from the

glutinous and acid particles which adhere to them: these ablutions should be made promptly, for the effects shew that this acid is of such a nature, as to quickly destroy the enamel in those cases where vomiting is frequent. I knew a young man, who was twenty-four years of age, who ruminated all solid food; he was so much habituated to it, that he could retain in his mouth the alimentary pulp that the stomach had rejected, for a sufficient length of time, without being observed in society: most of his teeth are so affected by it, that the enamel, which is reduced to the state of chalk, is easily detached with a tooth-pick, and the bony substance is thereby exposed, which remains white, and is rendered softer and more sensible. His teeth are set on edge every time he vomits, or eats sour fruit; therefore we cannot doubt, that the juices of the stomach, even when joined with alimentary substances, exert a very destructive action upon the teeth: this observation accords with the experience of Spallanzani, who says that the gastric juice of a dog has the property of destroying the enamel of the teeth.

Young mothers, who often pay dearly by those vomitings, for the soft pleasures which they afterwards experience, would do well to bear these facts in remembrance; and not neglect to wash their mouths immediately after such evacuations, if they wish to preserve their teeth; otherwise, one or more

of them of a more delicate texture, will thereby be rendered carious, and then become painful; which will force them for the sake of their health, and that of their children, to sacrifice them. The quantities of water which often fill their mouths, also require frequent ablutions, in order to preserve the lustre of the teeth.

CHAPTER V.

Observations upon what is injurious to the Teeth.

In order to preserve the teeth in good condition, cleanliness, though of importance, is not of itself sufficient; it is equally necessary to avoid every thing which can injure them. It is true there are some cases, in which our greatest care will be insufficient; yet there are many others which call imperiously for our utmost exertion. Perhaps at the first these attentions may interfere with the sports and pleasures of youth, but they will amply recompence them, by preventing that regret which is almost the inseparable companion of negligence. Mauchart in his *Ephémérides des Curieux de la Nature,* relates that an inscisor had been cracked by a cherry-stone, having been thrown violently against it. More than once that innocent play called blind-man's buff, has been interrupted by the fracture of a tooth against the marble-tablet of a commode, or of a chimney. I saw the child of a merchant of lemonade, whose two superior inscisors were fractured by the stroke of a hammer, at the moment when the rapid motion

of his arm was turned aside by one of his comrades. Have we not also seen the teeth knocked out or broken at those pastimes where a hard body is thrown with violence; such as the game of tennis, or of *billard de jardin*: fencing is also liable to similar accidents. I knew a fencing-master, who though young, had several of his teeth loosened by the stroke of a fencing-sword: had they been entirely knocked out of their sockets, I doubt whether he would have imitated that wrestler which Elian (1) speaks of; who, having had his teeth broken in the combat, swallowed them, to prevent his adversary having the satisfaction of seeing them.

To represent a ferocious animal with teeth of iron is an ingenious idea which belongs to the style in which the prophet Daniel (2) wrote: it is to arm ferocity with weapons of such a hardness, that sparks might be drawn from them. But confiding too much in this solidity, no one should imitate the example of him whose teeth gave sparks when struck with a flint, as related by Bartholin; (3) he will also leave the bully to chew glass and stones, as well as those who have the indiscretion to crack nuts with their teeth. To use them thus, is to run the risque of breaking or of loosening them, or at least of producing an irri-

(1.) *Historiar. diversar.* Lib X. cap. XIX.

(2.) *Et ecce bestia quarta terribilis, atque mirabilis, et fortis nimis, dentes ferreos habebat magnos.* C. VII. verse 7.

(3) *Th. Bartholini, de Luce hominum et brutorum,* Lib. I cap. XIII.

tation which afterwards may become the source of pain and caries.

There are females who have been much surprized to find in their front teeth certain grooves; these are produced by the awkward habit of cutting the threads with their teeth, and if this practice be long continued, they will be rendered loose. There are also other persons who owe the loss of their teeth to no other cause than having used them for a long time, in holding the string for the purpose of tying parcels, &c. But not to mention those imprudent persons who draw corks, and even nails with their teeth, what shall we say of those who will carry a person of their own bulk, or raise a table, or other heavy weights? A wager, or a momentary pleasure is often followed by repentance. Those who wish to preserve their teeth sound should not imitate them; still less will they gamble with them, like those who having lost their fortune, have staked their teeth, their eye-brows, and even their wives. (1) These gamesters have had a very different opinion from the Hebrews, upon the necessity of preserving their teeth, who in a criminal matter regarded the loss of a tooth as worthy of retaliation; (2) neither have they regulated their estimation of the teeth, according to that law which was instituted by the legislators

(1) *Sed nec defuére qui dentibus et superciliis luisse visi sunt, sicut et ipse venetum qui in uxorem suam luserat vidi.* PASCASIUS JUSTUS, de Aleà, lib. I. page 24.

(2) *Dentem pro dente,* Exode, chap. XXIII.

of the middle age; this law ordained, that a fine of twelve crowns should be levied against any person who had broken the tooth of his neighbour.

The friction occasioned by a tobacco-pipe often sets them on edge, and by frequent repetition wears them so as to form a cavity which appears to have been made by art for the end of the pipe: the mouth may justly be called in this case a *fumivore!* although the greatest part of the smoke is ejected by the mouth, and part is taken up by the absorbants, yet there is but too much remains upon the teeth, under the form of a fuliginous, or carbonic vapour. The quantity of saliva which is produced by smoking, proves beyond doubt, that the smoke by its acrimony, irritates the salivary glands and membranes which line the mouth; even the gums are not exempt, as is evident by that slight tumifaction which takes place in all smokers and chewers of tobacco, as Rouppe has observed, in speaking of the diseases of sailors. (1) We must therefore conclude, that if the chewing or smoking of tobacco have any advantages, it should be used with caution, on account of its effect upon the mouth alone; I leave it to the physician to determine, how far it is useful or injurious to the health. (*o*)

(1) *De Morbis Navigantium liber unus.*

(o) I am of opinion that the effect of tobacco is generally prejudicial to the constitution; there is no doubt but it takes away the appetite,

The palate is agreeably affected by ices and sherbets, which are therefore often eagerly sought after; but when they come in contact with those organs, to whose action they should not be subjected, they prove, by an ungrateful sensation, the truth of an aphorism of Hippocrates *Cold is hurtful to the teeth:* he also adds, that it congeals, as heat burns

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as it is often used for that purpose among the indigent, who vainly imagine, that because they have removed that source of uneasiness, they have supplied what nature required; but a moment's reflection will shew the fallacy of this conclusion: for when this salutary sensation is gratified by the stimulus of wholesome food, an accession of strength and spirits is the consequence; but when we substitute a noxious herb, we induce a morbid action, and so derange the digestive organs, that should we afterwards take any considerable quantity of food, it would be rejected. It will be said, that there are many old people, who have been long in the habit of smoking tobacco, who yet seem to enjoy good health. This arises partly from its loosing in a degree its effects, in the same manner as laudanum, and other narcotics; for by beginning with a few drops of laudanum, and gradually increasing it, there are persons who will take 1oz. for a dose: it may also arise from the excellence of the constitution, but I must confess I scarcely ever yet met with a person who had been long in the habit of chewing or smoking tobacco, who if he had no actual organic disease, was not evidently debilitated, and often disordered in health: the natural effect of tobacco in small quantities, is to produce nausea, indigestion, and consequently flatulence: it is, however, supposed by the vulgar to be a remedy for the latter, which they infer from the emission of wind which takes place after its use; but this wind is generated by the fermentation which that herb occasions, as every one may prove who is never troubled with wind (by smoking a pipe). This opinion of the pernicious effects of tobacco is also corroborated by the removal of some chronic diseases, and the uniform improvement of the health in those cases where I have seen it discontinued.

Were it not that I deem it improper to lengthen this digression, I should be tempted to enlarge upon the subject; but I refer the reader for further information, to a Treatise upon the subject, by Dr. Adam Clark.

them; (1) the sudden transition from one to the other always renders those agents more dangerous. It is proverbial, that hot soup sets the teeth on edge, (2) but may not the cold wine which is drank afterwards contribute to it; the action of a freezing air after boiling tea, renders the teeth sensible and painful, and tends to their destruction. Hence it is supposed by careful observers, arises that difference which exists between the teeth of the savage, and of the civilized being; in the former they are always good and solid; in the latter they are generally painful, loose, and carious.

The former lives chiefly on roots, fruits, and raw flesh; while the latter usually takes food hot and artfully prepared: but are the different maladies which affect the teeth to be attributed entirely to the aliments? May they not also depend upon all those causes which derange the health of man; and which are more frequent in proportion to the habits of refinement in which he lives. Those animals which dwell with man, and which partake of the charms and the pains of civilized society, are not exempt from diseases of the teeth, which may sometimes be observed in dogs; an example of which is given by Phèdre; who speaks of a dog with carious teeth, which had not the power to stop a wild boar: it may also be seen in horses, whose teeth are sometimes affected with caries, or disfigured with traces of

(1) *Frigidum inimicum ossibus, dentibus.* Sect. V. aph. 18.

(2) *Pultes ferventes faciunt corrumpere dentes.*

atrophy; some specimens of which I have in my collection, which I owe to the obliging friendship of M. Gerard, director of the royal Veterinary School of Alfort. On the contrary, it is amusing to see with what caution the rat (which retains more of its wild habits,) knaws the remains of a piece of bacon. A fine tooth, which is the *dens superbus* of Horace, might have its lustre sullied by aliments too refined.

What the poets have omitted to mention respecting the effects of neglecting the teeth, and of the tartar which is the consequence, may be properly discussed in this place. Permit me to remind the reader in a few words, that a neglect of cleanliness facilitates the accumulation of tartar round the teeth; that it renders them sensible, painful, and loose, and finally makes them come out: occasionally, however, we witness these sad effects, even where care has been used, especially when the patient masticates only on one side; in this case the simple inspection of the mouth will soon discover the true cause. Let young persons then take warning, who often contract this habit, by suffering a temporary tooth, which is painful and carious, to remain in, hoping that the secondary one will soon dislodge it; as mastication ought to take place on both sides of the mouth, the obstacles should be promptly removed by art; otherwise the tartar may accumulate to a considerable mass, so as to hinder the movements of the jaws: a case of which is related by Gérauldi. (1)

(1) *The art of preserving the teeth*, page 135,

Want of cleanliness also renders the mouth fœtid, which in society where it is customary to embrace often, is a matter of importance. Certain anecdotes respecting bad breath, whether it have arisen from neglect of cleanliness, or from other causes, may serve as a lesson for youth: it may suffice to relate the following, collected by Benserade; who, having heard a young lady sing in company whose breath was very strong, said to his neighbour, *the words and the voice are truly fine, but the air is worth nothing*. (1.)

I shall not examine in this place how far, and in what manner the teeth are deranged by the different diseases which affect the system: I have had occasion to treat on this subject in another work, (2) and the discussion would carry us too far; it is however important to know that in acute and inflammatory disorders, the teeth often become yellow or black, and are covered, as well as the gums, with a thick slime, and sometimes they begin to be affected with caries; hence the necessity of attention to the mouth after those maladies, the neglect of which is often followed by repentance. Perhaps even during the course of the disease, when the strength and pre-

(1) *Anecdotes Historical, Literary, and Critical, in Medicine, Surgery, and Pharmacy.* Paris. 1785, page 122.

(2) *See my reflections upon Odontalgia considered, with reference to other maladies: also my considerations upon the teeth, inserted in the Bulletins of the Society of the Faculty of Medicine in Paris.*

sence of mind will permit, it will be convenient to wash the mouth after the visit of the doctor; I say after the visit, for the mouth presents to him a picture of the health which he is in the habit of consulting, in order to direct his operations, but not for the purpose of forming certain divinations as treated of in chiromancy, necromancy and gastromancy, of which Peucer speaks, (1) but in order to deduce luminous prognostics, according to the example of Hippocrates, as explained in the profound work of M. Double, entitled *Séméiolog e Générale*. The result of this cleanliness will be, that the mouth being rendered less slimy and the gluten being removed from the teeth, cannot become a new sourse of corruption by being conveyed with the drinks into the stomach, or into the circulation by the absorbent vessels; and if the patient, with the advice of the physician, should take any food, it will be much better relished by the organ of taste; hence those who are in a state of convalescence, seldom relish the first repast, so much as the second.

Those who are afflicted with disorders of long duration, should not forget that the mouth is often affected by acrimonious humours, or by the treatment which has been adopted for their removal, want of cleanliness is often the determining cause. I have seen the tartar by irritating the gums, determine to the mouth, darting and rheumatic affections

(1) *Commentarius de præcipius generibus devinationum.* Witteb. 1576.

and even the gout; and it is often the cause of pain, renders the teeth loose, which finally drop out. Those who are obliged to take liquors which contain mineral acids, find their teeth set on edge, which become yellow and sometimes carious, so also those who take the acidulated mineral waters, are in the habit of chewing a little bread, to prevent the disagreeable sensation which would otherwise follow. The use of mercury, also frequently ulcerates the mouth, renders the gums spongy and loosens the teeth, and if these accidents happen even when the teeth are good and sound they are still more to be dreaded when the gums are soft, tumified and sensible, whether it be occasioned by the presence of tartar or of caries. And my own observation is sanctioned by the experience of the principle surgeon of the *Hospice des Vénériens, M. Cullerier*, who for upwards of twenty years has treated those patients committed to his care with distinguished success. In all these cases the superintendance of the dentist is as indispensable, as personal attentions are useful and necessary during, and after those maladies. (*p*)

It may be objected, that to regulate our lives by the laws of medicine (1) is disagreeable and too restrictive; but they who hold this language never fail to call in the aid of a physician when circumstances

(1) *Miserè vivit, qui medicè vivit.*

(p) Mercury loosens the teeth by exciting an absorption of the alveolar process.

require it, and probably they would ultimately find themselves less restrained, if reason rather than caprice regulated their mode of life. Why, say they, so many precautions for the teeth? were they necessary, how does it happen that so many persons have good teeth, who neglect them? but if there are some sufficiently robust and happy as to live without diseases and without medicines, we are not to conclude that it is of little importance to avoid all the exciting causes of disease.

Weakly and debilitated people have more occasion than others to watch over the preservation of their teeth. I have often seen young gentlemen who by attempting to remove from their faces, pimples, ringworms or errysipelas, have afterwards experienced pain in their teeth and gums. It is not unusual to see the gums become red and sensible, and the teeth to be affected with pain whenever the cold season sets in, which generally disperses suddenly those various irruptions. I have also observed the the same effects in those who have cold feet, or who have washed them in cold water, or who have had for a long time a sweating of those parts, which has been suddenly suppressed. The gums sometimes become fungous, and bleed by the suppression of a sanguineous or serous evacuation, the latter having taken its seat between the teeth and gums; in all these cases the dentist is generally able to discover the cause, and to point out what is indicated to be done.

Perhaps it may tend to accomplish the end which

I had in view, to examine how far fashion and costume may operate against the teeth; as Desessarts (1) has painted with a touch as terrific as vigorous the bad effects which they exercise upon the health, and as more recently, the truth has been developed by the medical and entertaining pen of the *Ami des Femmes*, it only remains for me to say, that a (2) thousand mouths will one day witness the effects which they have had upon the teeth. This mode of clothing is neither agreeable to polite manners nor to health, for the perspiration being checked, catarrhal diseases and defluxions are generally the consequence; and the mouth being an irritable part is easily affected, as well as the jaws and teeth.

How often do we hear people complain of pains

(1) "*How can I efface from my memory*" *says this physician*, "*that a young lady who shining in all the graces and in the vigour of youth, enjoying at six o'clock the most perfect health, is carried away in a costume of almost nudity to those fêtes, which might with reason be compared to the saturnals of the Romans, and returning home at eleven, seized with cold, the throat dry, the lungs oppressed, torn by a violent cough, and loosing soon her reason, a prey to the devouring fire of a fever, receiving only from our art, which she implores, a little relief in order that she may expiate in the protracted sufferings of Phthisis and in premature end, the fear of appearing ridiculous.*"

Results of observations made in several departments upon the diseases which prevailed during the first six months of the year 1808.

(2) *This is a title of the work by M. Marie de Saint-Ursin, concerning the influences of costume upon the health and morals of ladies.*

in the teeth, who after a hot summer's day, are pleased to respire the cool air of the evening, under a shady grove. I remember a lady who every time that she went in the evening in the costume of the graces, to the delicious promenades of Tivoli, or the Frascati was attacked the next morning with the tooth-ache; too much attached to pleasure she would not renounce her decolated robe of gauze without sleeves, even to avoid these distressing pains; she pretended that it was the province of science to indicate a preservative; and doubtless the baths which *M. Marie de Saint-Ursin* proposes to be used regularly by the ladies, even while they retain their fashionable clothing might have diminished, if not entirely removed the pains which she experienced; but it is doubtful whether they can prevent a relapse; by softening and relaxing the skin, these baths render it more proper to transmit during the day, the water with which the body is saturated in the morning, and thus perspiration becomes in the evening the sport of temperature and of costume.

It is not a matter of indifference with regard to the teeth, to submit the head to the caprices of fashion. Although pains in the teeth may have been cured, according to the report of some observers by cutting the hair, we ought not to conclude, that we can always imitate without inconvenience the head-dress of Titus and of Caracalla, many persons could depose to the contrary.

It sometimes happens, that the tooth-ache is produced every time that a person is shaved; but we

should not conclude with Hottinger, (1) that the presence of the beard is a preservative against that malady. The carious and painful teeth of those venerable anchorites, who distinguished themselves by their long beards, have scarcely left us room to believe that any intimate connection exists between this part and the teeth. Let us rather consider for a moment, that bushy mass which protects by its shade that part of the body where the senses have established their empire (the head); it is a perspiratory organ, whose surface is infinitely extended, and exhales a kind of secretion, which mixes with another more abundant, and that exhales from the pores of the scalp. Such is the connection between these parts, that the one cannot fail to be useful to the other; and when one is diseased, the other participates, examples of which are not rare. If we examine the nature of this secretion, we shall find that it is not watery, like that which plants perspire, but of an oily nature, like that which is found upon the wool of sheep, and upon the hair and feathers of most animals; it is a kind of natural unction, ingeniously prepared to repel all humidity, glewing (if I may be allowed the expression) the hairs together into a mass, so as to shelter the head from the sudden variations of the atmosphere.

The utility then of this fine *chevelure* should not be sacrificed to fashion. Hair-powder is not without its inconveniences, though it was probably invented

(1) *Miscellanea curiosa*, dec. III. an 9. obs. 229.

for the purpose of cleanliness; and bran or powdered ivory is at present often used for the same purpose. The same excuse, however, cannot be urged for the practice of burning the hair with hot irons. But to cut it close to the head, is to thwart the beneficent designs of nature, to nearly destroy a useful organ, and thereby expose another to be affected by the inclemencies of the weather: hence, after this indiscreet measure, often result pains of the head, weakness of sight, deafness, swelling of the glands of the neck, and pains in the jaws and teeth, which afterwards become carious. Without giving any particular examples, there are persons who will recognize the truth of this little sketch, (which might be amplified by the physician); and much distress which has been attributed to other causes, probably has owed its origin to this.

Brushing and rubbing the head strongly, by promoting perspiration, may tend to prevent in some measure the grievous consequences which follow its suppression; but to wash the head in a bucket of water, or by holding it under the spout of a pump, is very different. This operation is often performed by inexperienced youth secretly at their own homes; but in certain schools it is enforced by a law, which is certainly a very easy and expeditious mode of proceeding; but the consequence is in a number of cases, that those pupils become affected with pain in the teeth, and are obliged to have them extracted. We sometimes see infants, whose heads being perpetually wet, their pale countenances will never have

the rich colours of adolescence, but the smiles of infancy will be succeeded at an early age by wrinkles: it may be said that they are well wiped, in order to remove the water; but there will always remain a quantity sufficient to moisten the roots, by which the perspiration will be suppressed. Those ancients had certainly much experience who left us the precept, to wash the hands often, the teeth rarely, and the head never. (1)

Formerly the Celts did not think themselves properly decked, without having their hair of the colour of gold; (2) among other nations, on the contrary, as in France, this fashion is discarded, and black hair is preferred; and when it is not so naturally, they dye it of that colour. It is known that this practice will injure the teeth, and certain precautions are used to prevent it. Elian (3) reported, that the eggs of ravens have the property of blackening the hair; but he adds, that those who have recourse to this stratagem, take care to oil their mouths frequently, otherwise their teeth will acquire a black hue, as well as their hair, which will be indelible. Such a precaution (all credulity aside) for a means so apparently simple, ought certainly to awaken our caution in the use of those liquors, dyes, or pommades, which are generally composed of metallic, astringent, and caustic substances. Let young fe-

(1) *Lava sæpè manus, raró pedes, nunquam caput.*

(2) *Histoire des Celtes, par Pelloutier*, liv. II. c. VII.

(3) *De Animalium Naturâ*, lib. I. cap. LXVIII.

males then, who have white hairs scattered here and there profit by this lesson, and be upon their guard lest they injure their teeth, by blackening their hair.

"Not to leave without remedy those young persons who do not think, or who will not believe that paint made of quicksilver, or sublimate its son, is capable of knawing, or setting the teeth on edge: I recommend them, according to the advice of M. Rondelet, to rub their teeth with treacle steeped in white wine, which has a marvellous effect in resisting the effects of the poison." It was thus that Urbain Hemard, surgeon, expressed himself in 1582, whose knowledge of the anatomy and diseases of the teeth was distinguished. (1) This preservation against the effects of the cosmetic of that time, is certainly preferable to another mentioned by the same author, for guarding the teeth and gums against the effects of those substances which are administered in certain diseases: it consisted in holding a piece of gold between the teeth for some time; "in order," says he, "that the vapour of the quicksilver may attach itself to the gold, on account of the amity which subsists between them." (*q*)

(1) *Recherche de la vraye Anathomie des Dents.* Lyon, 1582, page 84.

(q) At this period medicine as well as the other sciences was in a most deplorable state; one hypothesis gave way to another equally visionary *ad infinitum*, until the illustrious Bacon conducted the human mind to the slow, but sure method of deducing knowledge from actual experi-

Since the professions, or occupations of some men are capable of injuring their teeth, it behoves them to be upon their guard. We read in the observations of M. Forest, (1) that apothecaries often have their teeth destroyed by caries, because they are obliged to taste of sirups, and other sweet preparations; but the example of many persons, and among others, that of the Duke of Beaufort, who though he eat daily more than a pound of sugar for the space of forty years, (2) still preserved his teeth even to seventy years of age firm and perfect; seems to prove that sugar is not hurtful to the teeth; though when they are carious, it certainly makes them ache: it is more reasonable to suppose, that this effect is produced by tasting of substances which exert a chemical action upon the enamel, such as the mineral acids: it is to this cause alone that a person of my acquaintance, who is much addicted to chemical experiments, attributes the loss of his teeth; which effect is also observable in those who manufacture the mineral acids. Those who work in mines of quicksilver, and even the overlookers, as well as all who manufacture with this metal, are affected with

(1) *Observat. et curat. medicin.* lib. XIV. observ. 3.

(2) *Medical Anecdotes by Barbeu Dubourg*, page 76.

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ment, or from a comparison of established facts: since which time science has made a steady progress, superstition, with all its direful attendants, has fallen before it; and the glorious empire of reason and of philosophy, seems to be established upon a lasting foundation.

a swelling of the gums, and their teeth become loose and painful. But the green colour which affect the teeth of persons who work in copper, is truly remarkable; upon a close examination, I have observed, that the very fine particles of this metal were united with the tartar that surrounds the teeth, and had become verdigrise: peculiar attention to the cleanliness of the mouth, and of the whole body, would tend to preserve this useful class of men from very serious inconveniences: this practice is adopted by those who are employed in glazing tin, for immediately after this operation, they wash the arms, face, nose, and mouth, and are rewarded by the preservation of their health and teeth.

We so frequently hear of water affecting the teeth, that some may be tempted to believe it, and wonder that we have not given some rules for the prevention of this pretended evil. Thus Galen informs us, that near Suza in Persia there was a fountain, the waters of which caused the teeth of him who drank them to drop out: it was said that the soldiers of the army of Germanicus, camped in Germany, near the Rhine, there found a similar fountain, whose effects were equally dreadful; that the waters of Senlisse, near Chevreuse, render the teeth of the inhabitants so soft, that they loose them without pain: but we have no more reason to believe that the waters of these places are dangerous to the teeth, than to say that the inhabitants of Corbeil near Paris, loose theirs because they drink the waters of the Seine. Paris itself offers a standing proof to the con-

trary, for there is no place where the river pays a greater tribute to water-drinkers, and yet we do not find that the Parisians have worse teeth than others. In general, water, however hard it may be, even if it curdles when tested with soap, cannot produce those injurious effects upon the teeth, without first deranging the health; excepting, however, the acidulated mineral waters, the continued use of which renders the teeth yellow and painful.

But why should we not attribute the loss of these teeth to a permanent cause; (viz.) to the cold and humid exalations which rise from the surface of the waters of low and marshy places: the perspiration being thereby suppressed, catarrhal diseases and defluxions will be produced, from which the mouth is rarely exempt in these aquatic places. The whole body thus acquires a state of softness and of atony, of which the teeth partake: sometimes the teeth are almost all destroyed by caries; at others they seem to be lengthened, become loose, and fall out; thus it is well known, that those who inhabit the countries situated at the bottom of high mountains, are deprived of their teeth before they have reached the middle period of life: those who are exposed for a long time to the vast regions of the ocean, are also liable to similar effects, as well as those who inhabit its shores. To prevent the loss of the teeth in these circumstances, we must not confine ourselves to external applications, though prepared with the greatest skill: to prevent the effects of this employment, we must oppose the external acting cause, by

strengthening the solids, and paying attention to the general health : this end will be promoted by an appropriate wholesome regimen, and suitable medicines ; such as the bitters, steel, and the antiscorbutics ; to which should be added plenty of exercise.

If, notwithstanding all the precaution to preserve the teeth, certain disorders should still appear, yet we need not despair of a remedy ; submitted to the vigilant eye of the professional man, his hand is often able to arrest the progress, and his counsel to remove the cause ; but it is important to apply in the incipient state of the disease, for at a certain period, medical science is often unavailing, or precarious.

CHAPTER VI.

Of certain Maladies of the Teeth, and of the surrounding Parts.

EVERY tender mother will doubtless rejoice when her child has passed the epoch of the first dentition without accident, when the secondary teeth, in taking the place of the first, are properly arranged, and are sound and perfect even to the period when the wisdom teeth usually cut. But it frequently happens that these young teeth, which at first appear so white and well formed, are attacked with diseases which threaten their destruction; sometimes the milk teeth become carious, while the secondary and permanent ones remain sound; sometimes the secondary teeth are affected with caries, though the first have afforded no traces, and we occasionally find both the first and second have experienced the destroying effects. The maternal solicitude is awakened in all these cases; and how should it be otherwise, when judging often by herself, from the privation of certain teeth, she feels the necessity of seeing them good, in the object of her tenderest care: influenced by the same sentiment, she sees with fresh alarm the diseases which often takes place in the neighbouring parts; such as

the gums and jaw-bones, threaten to destroy the teeth, or have been occasioned by a disease of the latter organs. According to various circumstances which present themselves, she is always more or less disquieted, and either leaves all to nature, or consults one from whom she has a right to expect consolation. If the evil is slight, her inquietude is soon dissipated; but it is often too well founded, as the rapid progress of the disease will shew. To remove unfounded suspicions, and direct the conduct, we shall proceed to treat of some diseases, as well of the teeth, as of those parts with which they are immediately connected.

If it is rare to see all the milk teeth renewed without one having been affected with caries: it is not so to see the greatest part become diseased one after another; in some cases, indeed, they become carious altogether. This disease generally begins at the sides, and then is slow in its progress, and almost unattended with pain, especially in the inscisors and canine; but in the small grinders the progress is more rapid, and often attended with pain: and in this case, those children who have begun to eat more solid food, have difficulty in chewing it, and experience pain during or after mastication; all which is expressed by tears and cries, to relieve themselves they have recourse to a tooth-pick, for the purpose of removing the pieces of aliment which have lodged in the decayed part, and smiles and playfulness announce the relief; which however, is but too often of transient duration.

If art be consulted in this case, she can do nothing by way of preserving them; neither plugging nor filing can be used with certainty of success, and as the caries in children is rarely attended with those inexpressible pains which are experienced by adults, the extraction becomes less urgent; so that the milk teeth, more or less carious, are often permitted to remain until they give way to the approach of the secondary ones: we sometimes see the secondary grinders more small than the primary, traverse the crown of the latter, the centre of which has been destroyed by caries, arrive at their perfect growth, and although surrounded by diseased fragments, they are as white and as free from spots, as if they had only been in contact with the gum; an incontestible proof that the caries of the first teeth, does not prevent the soundness of the second.

It sometimes happens, that a child who has a carious tooth, becomes afflicted with pain, and constant restlessness; the tooth is very tender to the touch, and is frequently somewhat loose; in this case the pain is not confined to the tooth, but rather to the surrounding soft parts, and depends upon a determination of blood to those parts, attended with inflammation and swelling: occasionally this painful affection disappears of itself, or is removed by the application of spices, or figs steeped in mallow water; sometimes the pain is so acute as to produce fever, loss of sleep, and ultimately an abscess: if the carious tooth is not promptly extracted, all the symptoms augment, until the pus which had formed at

the root, destroys and penetrates the alveolus, or socket, and forms an issue in the gum, after which the little sufferer becomes calm; but the opening not healing, the purulent discharge continues until the tooth comes out of itself or is extracted, and in this state it may still keep its place and be useful, until it is loosened by the tooth that is to succeed, which always takes place considerably before the natural period.

These abscesses are sometimes accompanied with a greater loss of the socket of the tooth, than is sufficient for the passage of the pus, and then the carious tooth becomes less fit to serve for mastication, or if it is still useful in this operation, it is readily moved, so that the root being pressed against the deficient part of the socket, it protrudes at the place where the matter issues; this root, being sharp and unequal from disease, wounds the interior part of the cheeks and lips, and occasions swelling and pain, and finally an ulcer: not knowing the nature of this substance which penetrates the gums, parents become alarmed; but no sooner have they seen the surgeon or the dentist, than their inquietude is dissipated along with the cause which had given rise to it, that is by the extraction of the tooth.

This is the usual course of the pains and abscesses which accompany the caries of the primary teeth; but in infants whose blood is determined to the head, either by their constitution, or by any derangement of health, it often happens that the inflammation having increased to a high degree, these abscesses

make considerable ravages, destroying a great portion of the jaw-bone, and gangrenous spots are sometimes observable upon the gums; when parents have neglected to call in the necessary aid at an early stage and have left all to the unassisted efforts of nature, the child may be deprived not only of a number of the first teeth, but also of the secondary ones.

If the caries of one, or a few of the milk teeth is capable of producing such disorder in the animal œconomy, what must be the consequence when they are all attacked, and the enamel separates from the osseous substance like the shell of a hardened egg; these teeth which are of a yellow brown colour, although sensible, are not however the most painful; the child experiences difficulty in eating any kind of food, he refuses acids, preserves, and sugar; it is less necessary to have recourse to operations in this case than in the preceeding, as all these teeth are pushed out by the secondary ones earlier than usual; if however, an inflammatory tumour should take place, we must extract the tooth in its immediate vicinity, in order to avoid the consequences which may be the more dreadful in this case, because this disorder of the teeth is often connected with a state of morbid irritability of the mouth, or of an acrimonious principle which exists in the whole mass of fluids.

(r) The secondary or permanent teeth, as well as

(r) It is supposed that caries of the teeth often proceeds from an ori-

the milk teeth are liable to decay in young subjects, and perhaps even more so than at a maturer age; as they would probably last for life if they did not become diseased they require, from the parents and the dentist, constant watchfulness: frequently the caries takes place from the first year after they have cut, which happens more especially in infants whose saliva is viscid and of a gluey nature, or whose hands and feet are subject to chilblains, or in whom certain cutaneous irruptions have disappeared. In general the first large grinders are the earliest attacked, afterwards the inscisors, while the small grinders and secondary large ones, are not attacked till a later period.

The sooner the teeth become affected with caries after their cutting, the more rapid is its progress; which is a circumstance that should not be forgotten when we endeavour to preserve the teeth against the ravages of this disease. It is important to consider the constitution of those children, whose first teeth are easily affected with caries, and to ascertain the maladies to which they are subject, whether they are

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ginal defect of structure, or from a deficiency of phosphate of lime; and Mr. Fox observes, "that this seems to be proved by the common observation, that they become decayed in pairs;" that is, those teeth which are formed at the same time, being in a similar state of imperfections, have not the power to resist the causes of disease, and, therefore, nearly about the same period, they exhibit signs of decay, while those teeth which have been formed at another time, when a more healthy action has existed, have remained perfectly sound to the end of life.

hereditary or acquired, as these maladies are a very frequent cause of caries in the teeth; without entering into minute distinctions, they are generally combatted by a good regimen and certain medicines, among which may be reckoned the antiscorbutic wine or sirup, as well as the feruginous class of tonics; in many cases they will be found useful when combined; but we shall only fulfil the curative indication imperfectly, unless we endeavour to remove from the teeth the destroying cause, and to stop its progress by remedies adapted to each particular case; here the dentist will often do well to call in the aid of a scientific physician.

Although the caries which attacks the teeth of young persons, shews itself under different aspects, as I have demonstrated elsewhere, (1) the change of colour of the affected part will always distinguish it; generally there is a black spot which is easily perceived, especially when the teeth are not placed too close together; sometimes the spot has a grey tinge, being covered with enamel; in the former case the disease usually commences at the sides of the front teeth, or upon the bodies of the grinders, and at the beginning, there is only slight pain upon the access of air or when touched with a tooth-pick, but afterwards it becomes more painful: in the second case the part attacked is almost always the anterior part of the incisors; covered with a viscid slime it is less visible

(1) *Bulletin de la faculté de médicine de Paris annèe* 1808, page 55 et 115.

and would scarcely be known to exist, were it not from the uneasiness produced by cold air, cold substances, acids, sugar, &c.; and when in this state young persons often abstain from cleaning them, by which they acquire a yellow appearance.

Far from remaining stationary as in some adults, or to disappear by an effort of nature, which is as rare as it is astonishing and which is confined to adults (1) the caries seldom ceases in young persons to make the most rapid progress, and finally to produce the tooth-ache, but this is effected in two different ways, as one of the first physicians of antiquity (Galen) has judiciously observed from his own experience: sometimes the pain, being occasioned by the application of cold, or heat, or other causes, suddenly subsides, and is renewed by accessions more or less frequent and intense, and then gives place to a repose, the duration of which is always regulated by the causes which have produced the caries, and the means employed for the cure; (*r*) in this case

(1) *Bulletins de la faculté de médicine de Paris.*

(r) The operation of extraction for the cure of tooth-ache, is much too generally adopted, and is often confided to persons destitute of anatomical skill, who cannot fail in many cases to do mischief: M. Maggio has recommended the breaking down of carious teeth, and afterwards destroying the nerve by means of a watchmaker's broach, as a substitute for extraction, which is certainly attended with very little pain, and will often be found effectual, especially in the front teeth, as I have witnessed in several cases; by this means the stumps are preserved, which not only assist in mastication, but form a support to the other

it may be said that the pain is confined to the tooth, and extraction is not often had recourse to: in the other case, on the contrary, it is not confined to the tooth, but arises from the inflammatory swelling of the surrounding soft parts which envelope it; it is almost always continued and increases; sometimes it disappears by proper applications; but it often acquires considerable intensity, and is attended with pulsation and other symptoms indicative of the form-

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teeth; whereas when they are extracted, this support is lost, and the durability of the remaining teeth is diminished.

I am of opinion however, that many teeth which are now sacrificed might be cured, and thus continue to be useful for years; the remedy I am about to propose, is not new, being nothing more than ardent spirits, the only discovery which I claim is in the application, but this is of great importance, for as it is generally used, it either fails, or gives very slight relief; whereas when applied in the following manner, it will be found effectual in a great number of cases.

For this purpose any spirituous liquor may be used, but rum is the best, which is rendered more effectual by the addition of a little alcohol, this should be made rather warm;—half a table-spoonfull of which is to be held in the mouth, until it ceases to stimulate; the pain will generally be much alleviated, or entirely removed, but will probably return in the course of a minute or two, when the remedy should again be repeated, and so on until the cure is effected. I have sometimes found it necessary to persevere for twelve or even twenty-four hours, during which time a pint or even a quart of rum has been consumed before complete relief was obtained. It seems to act by producing a counter irritation, in the same manner as an internal pain is relieved by the application of a blister, the action of which has been accurately and elegantly explained by Mr. Burns; it is upon the same principle that a blister behind the ear will often relieve the tooth-ache; but a sinapism to the cheek will be more effectual. The tinctures which are composed of essential oils, act in a similar way. It sometimes happens however, and especially when means have not been early adopted, that extraction becomes indispensably necessary.

ation of an abscess: this kind of pain is always felt, though with different degrees of intensity, until suppuration takes place, and it does not entirely cease until the pus is discharged, which takes place either along the root of the tooth, upon the gums, upon the cheek, or on the margin of the inferior jaw-bone; the pus continues to flow and seldom ceases until the diseased tooth is extracted. The tooth however may be preserved when the abscess forms upon the gum, but if the opening takes place upon the face or chin, the operation must be resorted to, otherwise the abscess will form anew, or a fistulous opening will remain for years; the presence of which has often excited a suspicion of the existence of a very different disease, than the unsound state of a tooth. In this case all medicaments, whether used externally or internally, even when persevered in for years are of no efficacy, while the extraction of the tooth alone which has produced these abscesses and fistulous ulcers, will be found a perfect remedy without having recourse to any other means. The carious teeth are here like a thorn, or any other foreign body, which when removed the cure is effected; so after this operation we see the purulent discharge which had continued for months or years, cease in the course of twenty-four or forty-eight hours, and the opening of the ulcer shut up by a cicatrix; whoever has observed what passes in these consecutive maladies will find room for astonishment; but if we mark with attention what nature does for the cure of these disorders, how artfully she prepares the

way for that cure by a commencement of cicatrisation of the bone, we shall be lost in admiration at these benign efforts, which I have explained more fully in another book. (1)

When these abscesses are complicated with gangrenous spots, or with a mortification of a considerable part of the bone, which more rarely happens with the secondary, than with the primary teeth, we have always reason to suspect a pre-existant disease of the whole system; which will render the cure slow, unless the efforts of nature, aided by proper medical treatment, are capable of throwing off the morbific cause.

But abscesses and fistulous ulcers may be induced in the gums of young persons by other causes than carious teeth: by a blow, or by falling upon the tooth, so as to occasion a partial fracture, or a violent pressure upon the socket, a painful irritation, and consequent inflammation of the membrane which lines the socket, may be the consequence. If we do not endeavour to allay the irritation at the commencement, by causing the mouth to be washed with slightly spirituous applications; and if afterwards we neglect to arrest its effects, by relaxing and calming gargarisms, such as milk, or a decoction of marsh mallows, an inflammatory swelling will supervene, and will terminate in suppuration, which is sometimes attended with the expoliation of a small portion of bone. When it is a primary tooth, we do

(1) *Propositions respecting dental Fistulæ*. Paris, 1814.

not hesitate to extract it, to prevent the pain insepa-rable from the formation of an abscess: if it be a se-condary tooth the treatment is regulated in general by the state of the other teeth; as for example, if there be a fistulous ulcer, or abscess at the root, and if there be reason to believe, that the neighbouring teeth will approach each other sufficiently to fill up the space, we then have recourse to its extraction; otherwise we preserve it, and content ourselves by doing all that art has prescribed for the palliation of such disorders, and with no other inconvenience than a slight running from the ulcer, the tooth may remain in its place for many years.

The cutting of the secondary, or permanent teeth, is sometimes attended with irritation, and even ab-scess in the gums, (*s*) especially where there is a determination of blood to the head. Fomentations, a vegetable diet, diluting drinks, and relaxing gargles, are proper to diminish their effects; they often dis-appear spontaneously, and again return, until the tooth is disengaged from the gum.

We have already observed, that a bad habit is sometimes contracted of chewing only with one side of the mouth, and whether it was occasioned by a carious tooth or not, the jaws became red, soft, and

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(s) This happens more frequently in the wisdom teeth. it has sometimes occurred as late as forty or fifty years of age, the patient has imagined that a cancer, or some other serious tumour was approaching; but these fears have been quickly dissipated by the lancing of the gums, and subsequent appearance of the teeth.

fungous; but in children of six or seven years of age, it is also frequently combined with ulcers, which bleed with the slightest touch, and which emit a disagreeable odour; mothers believing it to be the scurvy become alarmed, and have recourse to the remedies used for the cure of that malady; but the disease continuing, a physician is consulted, who judging that this affection depends on the bad state of the teeth, advises their extraction, and recommends the patient to chew on the affected side as often as possible: mastication in this case is a curative means, perhaps as effectual as repeated frictions of the gums with a finger covered with dry linen, or dipped in a mixture of honey of roses and borax; if however, the teeth though slightly loose, are not affected with caries, we should be cautious in recommending extraction, since they may regain their stability by a continuance of mastication and the use of frictions.

There is a foul bloody ulcer which takes place on the edges of the gums, destroys in part the attachment of the teeth, and occasions the inscisors to be slightly loose; this affection is almost always connected with a bad habit of body; it is frequently seen attended with a catarrhal disorder, known by the name of mucous fever; it is in vain to treat it locally with honey of roses, borax, bark, charcoal, camphor, and spirituous applications; we are obliged to have recourse to general means, which are most successfully employed by the physician,

otherwise the disease may be protracted, and may produce more baneful effects upon the teeth.

(*t*) Another disease, which were it only on account of its connection with the teeth, should excite the solicitude of parents, is the scorbutic gangrene, or rottenness of the gums; although it sometimes manifests itself in adults, children are more frequently attacked by it; it is obstinate in its nature, dreadful in its effects, and the least which is likely to result from it, is the loss of the teeth; the most active remedies have often proved unavailing; and neither cutting instruments, nor even fire, have been able to snatch the unfortunate victims from the jaws of death: the hideous picture which a celebrated Dutch physician, Van Swietan, has presented of this malady, and which the Royal Academy of Surgery has not disdained to retrace in its memoirs, will serve us here as a guide, in sketching its more prominent features. At first there is only a slight swelling of the gums, with redness, heat, and pain;

(t) What is commonly, though improperly called scurvy in the gums, is nothing more than a swelling, or ulceration, produced solely by an accumulation of tartar, which is generally cured by scaling; but as the scales often insinuate themselves under the gum, care should be taken to pass the instrument (which should always be kept in good order) sufficiently far to remove every vestige of it.

When the gums are very flaccid, and easily bleed, but not proceeding from the above cause, Mr. Moore strongly recommends a solution of lunar caustic in water, in the proportion of 1 ʒ to 1 ℥, to be applied with a camel-hair pencil.

it is fixed to a point which is soon converted into a lenticular blotch of a cinder colour, soft, indolent, and surrounded with a red circle; this blotch might easily be taken for a gangrenous eschar, which is about to separate, but the rapidity with which it spreads soon undeceives us, and exposes this affection which like a violent conflagration, consumes all the parts within its reach; so that not only the flesh, but the bones and teeth become a prey to its ravages, baffling all attempts to arrest its progress. "I have seen," says Van Swietan, "cases of this kind, which I cannot call to my recollection without horror, in poor children where the disease had been neglected at its commencement, or badly treated, in which the gangrene of the gums had made such progress, that it had not only destroyed those teeth which had already cut, but it had even corrupted in their sockets the rudiments of those which were to succeed, so that these little unfortunates were destined from the dawn of life to support the evils of old age, their mouths having been *déméublée;* nay more, after the corruption of the gums I have seen almost all the osseous part of the lower jaw exfoliate, the tongue corroded, the lips, cheeks, and chin inflamed, until death has put an end to such aggravated sufferings." But lest tender mothers should be unnecessarily alarmed at this sketch, they should be informed, that happily this formidable disease seldom attacks any but those infants which are collected together into a hot place, filled with humid and putrid miasmata; and those who have

inherited from their parents a scorbutic and scrophulous disposition, and who have been deprived of the breast at an early period, which has been replaced by improper food; but let them be upon their guard, especially if their children are bloated in the face, of a soft habit of body, whose gums are tender, and easily bled, and whose breath is hot and fœted; and not neglect to correct a disposition to this frightful disease, or even to arrest it when in its insipient state. A succulent and animal diet, such as good soups, with roast-beef, or mutton, along with good wine, are the most likely means to prevent this disease; but when it is once fairly formed, an experienced physician should be consulted, and should not be opposed by too excessive tenderness, in the application of powerful means, even should he deem cauterisation necessary, that is to say, the application of a red-hot iron, which the celebrated physicians of the 17th age have recommended, and have presented us with a figure of the instrument. (1) (*u*)

(1) *M. A. Severini, de efficaci Medicinà.* Franco-furti, in-fol. 1646, page 276.

(u) The actual cautery, or red-hot iron is much more used in France than in England: it is often used by Dupuytren, at the Hotel Dieu, for cancer, and I believe sometimes with success. Although the French surgeons have performed some operations in surgery, which have not been attempted in England, among which may be reckoned the amputation of the *uterus*; yet I believe the general state of surgery in that country is inferior to ours; the neglect of adopting more generally the important plan recommended by Mr. Baynton seems highly culpable.

Those livid and grangrenous ulcers which take place in the gums, and other parts of the mouths of children after the small-pox, (v) or other fevers are also often attended with danger to the teeth; unless curative means be promptly employed, both internally and externally, and among the latter cauterisation should hold the first rank, as well as in the scorbutic gangrene.

In fine, the gums without being ulcerated, are sometimes so swelled, as to form a kind of fungous substance, which covers one half, or the whole of the crown of the teeth; it is generally very red, but unattended with heat, or pain: it is sometimes even loose, and impedes mastication: attentive to this state of the gums, an enlightened dentist would endeavour to ascertain the cause, and in order to remove it he will often find it necessary to cut off the part, which is hard, loose, and insensible; for it would be in vain to expect much good, by merely making an inscision to let out the blood: if this tumifaction of the gums should be combined with a scorbutic or cancerous affection, well marked, any operation would

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(v) Happily, however, the small-pox may now be almost with certainty prevented by the mild and harmless introduction of vaccine virus; and as this discovery has now made its way over every part of the civilized world, a fair prospect is afforded of the extirpation of this scourge of the human race.

A monument has been erected to the memory of Dr. Jenner (the discoverer) in Paris, and he certainly merits the gratitude of all, and particularly of the rising generation.

probably be unsuccessful; but fortunately, the latter is rarely met with in youth.

The lower jaw-bone is also liable to be affected with diseases, which are sometimes connected with carious teeth, and sometimes from another cause; a hard circumscribed and indolent tumour increases, until it acquires a considerable size, it is an exostosis; and in order to remove it, if there be carious teeth, they should be extracted, which will be successful, when performed early, otherwise we are obliged to have recourse to more formidable operations: in some cases the tumifaction extends from the bone to the gums, with several points of suppuration, and when the disease is far advanced, the dental and aveolar arches give way in a mass to the pressure of the finger, it forms a necrosis; the bony part being dead, is thrown off by the subjacent flesh, and a new bone is formed to supply its place, but the teeth are all lost; as in this last malady, nature requires assistance, recourse to the grand principles of surgery becomes absolutely necessary.

Pain and sensibility of the mouth in the first years of life, may be occasioned not only by the cutting of the regular teeth, but supernumerary teeth may also contribute thereto; the celebrated surgeon, J. L. Petit has observed, that a weight, or numbness of the lower jaw is felt by the presence of of a supernumerary tooth. I have often heard young persons complain of an excessive sensibility of the teeth, and of a perpetual desire to bite or grind them,

the sensation being relieved by pressing the jaws one against the other; the devolopement, or cutting of the large grinders was the cause. Those pains which fix upon the angles of the jaw, and which sometimes shoot along the neck, also arise from the same cause, which attack suddenly and often as rapidly disappear: in order to arrest, or to prevent the effects of this sensibility, the tepid bath, diluting drinks, light diet, and plenty of exercise, seem the most effectual means; the suppression of an exudation behind the ears, or on the head, requires the application of a perpetual blister.

CHAPTER VII.

Operations relative to the Teeth.

Though several operations necessary for the teeth of children have been already mentioned, it will nevertheless be useful to retrace the picture, were it only to instruct parents, what may be done to prevent their necessity, and what are the resourses of art which may be relied upon: I shall not wound their sensibility in this place, by detailing the particular modes of operating, the knowledge of which belongs to professional men alone, who ought to perform this part of their duty cautiously, and with that precision that will ensure success, but it should never be resorted to unnecessarily.

These operations may be considered under different points of view; some are performed to facilitate the cutting, and due arrangement of the teeth; others consist in removing from those organs whatever is injurious to their perfection or beauty; and others again are for the purpose of remedying certain injuries which they have sustained, and which tend to their destruction. It is not rare to find individuals who have had occasion for all these operations; but it is extremely rare to see those who

have not had occasion for one of them: happy is he, who by a timely operation, has been preserved from those which are often rendered necessary by neglect.

There is an operation, which is not often employed because nature is generally sufficient of herself, and we are not obliged to have recourse to it but when she is interrupted in her course: it is the section of the gums, for the purpose of facilitating the egress of some tooth: this operation is sometimes performed by a simple inscision, but the divided parts have a tendency to unite immediately after, and then we fail in our intention; at other times it is performed by a crucial inscision, i. e. by making a cross, in which case the union of the sides of the wound is not so likely to happen, but the angles become tumified, separate, and are often painful; this is a new evil added to the first; the most sure is excision, which consists in removing entirely the portion of gum which covers the tooth, and even should it be necessary (which is extremely rare) to take away a certain portion of the edge of the socket that presents an obstacle; this has been practised with success by Jourdain, a celebrated dentist of the present age, and when we consider that it was also the mode of operating practised by the first masters of the art, we must be convinced of the safety of the operation, and of the futility of those vulgar clamours which have been raised against it.

We are sometimes obliged to take away a portion

of the gum which covers one of the large grinders, which is pinched during mastication, and which swells and becomes painful; but we must be careful not to confound this state with the swelling of the mucous membrane of the mouth; the latter being only accidental, and easily dissipated without an operation.

In general the first, or milk teeth, immediately after their appearance are well placed; and were it otherwise, we are not obliged for the sake of their arrangement, to have recourse to any operation; for by trying to correct a defect which is as temporary as these teeth, we might expose the child to a greater for the second dentition. But it is different with the secondary teeth; they are often placed either before or behind the primary ones; in which case these latter should be extracted, and when the place which they ought to occupy is not sufficient, we are obliged to extract several of the neighbouring ones even before they are loose; this is a general rule, which admits of some exceptions, and which it is the province of the dentist to explain.

It frequently happens also that the secondary teeth have a tendency to arrange themselves improperly, either for want of room or from an improper formation of the alveolar arch; in which case the extraction of the milk teeth will not suffice, but we shall find it necessary to sacrifice one of the new teeth. When a canine tooth is irregular (which often happens) the extraction of the first small grinder will be necessary, in conformity to the precept, which directs those most within sight to be preserved; if however

the direction of the canine is forwards in the front of the lateral inscisor, the inscisor must then be extracted, and especially as this latter is often badly arranged or imperfectly formed.

When all the secondary teeth have made their appearance, if one of them be out of the row, it must be restored to its proper place by extracting one of the neighbouring teeth, always taking into consideration the connection which subsists between the upper and lower jaws, for the relative disposition of these parts may oppose the success of the operation; therefore when this disposition exists, we are obliged to extract the tooth which is out of the row, unless the deformity would be increased by the operation, which however is very rare, besides it always diminishes afterwards by the approximation of the two nearest teeth. Supernumerary teeth which are out of the row are also extracted upon the same principle.

When a tooth is fractured to a level with the gum, we should not neglect to extract it early; (*w*) as

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(w) The author does not enter upon the best mode of extracting teeth; Mr. Moore of London, Dentist, (whose valuable instructions I had the honour of attending) thinks the principle thing to be attended to, is the proper size of the claw, and whenever it is practicable, teeth should be drawn outwards, for much less force is required to pull them in that direction; he also recommends them to be extracted slowly; but when the greatest caution is used, he observes, sometimes a small part of the alveolus will adhere to the tooth; his instrument was therefore furnished with a projecting part which was for the purpose of removing it. A tooth instrument is described in the Medical Journal vol. 10, page 242, by Mr. Jardine, this gentleman observes, that the

well as the first large grinders when they are carious, because the neighbouring teeth by approximating each other will lessen the space which those teeth occupied; and if in this case the second large grinder have not yet cut, it will take a direction more forward, and nearly occupy the place of the first; the same rule will hold good with regard to the extraction of the second large grinder, for its place will in like manner be occupied, by the one further back, or the last grinder.

The teeth are often filed, even at a very tender age, either for the purpose of facilitating their arrangement, or to arrest in its principle the destructive effect of caries, or lastly at a little riper age, in in order to increase their beauty.

First. When attention has not been paid to the cutting of a superior inscisor, which has taken a direction towards the roof of the mouth, in such a manner, that its cutting edge is situated behind instead of before that of the inferior inscisor, with which it corresponds; we ought to file the edges of both as much as is necessary to remove the obstacle, if it be not too great, and speedily either by the operation of nature alone, or aided by the finger of the mother or child, the upper tooth will take its

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nearer a right angle the end of the claw when fixed, makes with the bolster, the more perpendicular the tooth will be drawn; and that the principle defect of all tooth instruments, consists in the claw being fixed to the top, instead of the side of the bolster.

proper direction; but when the obstacle is too great, we must have recourse to the dental gag.

Secondly. When one of the inscisors especially of the upper jaw, is not properly arranged between the two others, for want of room, we file its sides a little, as well as those of the two neighbouring ones, and order will gradually be re-established.

Thirdly. About the age of fifteen years we have recourse to the file, in order to diminish the length of a tooth, or to destroy the inequalities which disfigure the inscisors, which friction has not been able to remove, or lastly to make them equal or level, in such a manner that the interferance of art shall not be perceived.

Fourthly. After a tooth has been fractured, which may still be preserved, it is often necessary to have recourse to the file in order to destroy the asperities of the fractured surface, or to take off the point of an angle; and at the same time it is often requisite to file the adjoining teeth shorter, in order to diminish the deformity which would otherwise remain.

Fifthly. The file is a most valuable instrument for the cure of caries; it would be found useful as I have already observed for the first teeth; but it should by no means be neglected for the secondary ones, by it, the teeth have often borne witness, at an advanced period in favour of the important advantages, when it has been employed early, and with necessary precaution. The file is generally most successful when the caries manifests itself on the sides of the teeth: there is sometimes an excessive

sensibility produced by the cold air or cold liquors, which is not attended with any visible disease, and which cannot be relieved by the file, but will probably be rendered worse by it; but it will often gradually diminish of itself, unless excited by too cold or too hot aliments. The inscisors and canine, may be filed with the greatest certainty of success; and the first indications of caries may there be easily detected; but in the grinders, which present large surfaces, the caries is often very deep; we may however file them when there is little sensibility unless for reasons already stated, it is preferable to extract them; after filing, it is sometimes adviseable to attempt their preservation by stopping.

In all the cases where the file is used, we ought not to content ourselves by merely introducing the file between the teeth; but we should always preserve as much as possible of the anterior part, that as little deformity as possible may be visible after the operation; are may however, sacrifice half of a tooth in order to preserve the remainder. I have often seen young persons who have regretted the loss of a front tooth, and have blamed the morbid sensibility of their parents for having objected to these teeth being filed before marriage.

It cannot be too often repeated, that in order to cure a carious tooth by filing, the whole of the destroying principle must be irradicated; but we must not wait till the presence of the disease is announced by pain, for then there would be a double intention

to fulfil; before the file could be used, it would be necessary to calm the irritation, otherwise we should augment its intensity; so likewise if by filing a tooth which is only too sensible, pain should be excited, the operation should be suspended, and resumed at the end of a month or two, at which period the file becomes more supportable, as if the cure of the caries had already commenced; but the example of some teeth having been thus preserved, and the caries arrested in its course, should not induce us to relax in our operations, until the whole is destroyed. It should not be concealed however, that notwithstanding the general success of filing, there are cases where it has been used with the greatest caution, and yet the caries has proceeded, but generally in another part of the tooth than that which was filed; this unfortunate circumstance evidently proceeds from a defect of the whole system which requires the aid of medicine.

In some cases it may be sufficient to scrape away with a little steel instrument, the carious part of a tooth instead of filing, and which is sometimes performed after filing to render it more effectual; there always remains, however, a slight excavation, but when it is made of a proper form, the food will not lodge there, but will be easily removed by washing the mouth; in stopping the tooth also, the carious part should be scraped, in order that every vestage may be removed, for the excavations are often too deep for the successful application of the file.

Teeth are stopped with gold, lead, or tin, by perfectly filling the hollow part with one of these metals: this operation has often been performed in young persons, whose teeth have thereby been preserved for fifteen or twenty years; but it is necessary to be made acquainted with the conditions, without which our expectations of success will not be realised. In every case the cavity formed by the caries should resemble an inverted cone, being narrowest at its entrance, in order that the metal with which it is filled, being well pressed, may be firmly supported like a diamond in the collet of a ring. But if the cavity be of a funnel shape, the excavated part not being sufficient to retain the metal, it will frustrate our endeavours, unless we artfully take advantage of certain retrenchments which may happen to be found in the cavity; without this principle condition the metal soon looses its perfect juxta-position upon the parts, the moisture of the mouth penetrates, and even before the gold comes out, the tooth becomes tainted, continues to decay, and is liable to ache.

Although it is requisite to press the metal into the cavity of a carious tooth, in order that it may be perfectly filled, yet it should not be rendered painful, or liable to ache by the slightest touch; for though the tendency to ache sometimes ceases when the tooth ceases to be disturbed; it generally goes on to augment so as to become very acute, and if we do not remove the metal we shall be obliged to have recourse to extraction, which we were endeavouring

to avoid. It is important to observe, however, that the teeth are sometimes sensible, without being painful, and which may be safely stopped, but it should be done gradually; at the first the gold should be slightly introduced, so as to keep out the air and moisture, until the parts become accustomed to the pressure of a foreign body; and in two or three months after, the pressure is to be repeated, and the operation finished, if the sensibility seems to be destroyed, which will be ascertained by touching the part. (*x*)

Sometimes a gum-boil forms two or three days after this salutary operation, which may deter some people from submitting to it, unless the desire of preserving a tooth (which may often be done for upwards of ten years) does not give sufficient courage to support this little inconvenience. (1)

The application of a red-hot iron for the purpose of preserving a decayed tooth is so repugnant to the feelings of young persons, that they will scarcely sub-

(1) *Fauchard says he has seen teeth, which have been preserved by this operation, for forty years.*

(x) Some practitioners are in the habit of using lead for this purpose, but as this metal may be acted upon chemically by different aliments, and particularly by the strong acids, by which it may be converted into white lead, it should be carefully avoided; gold and platina are the safest, as well as the most durable of the metals, as they are the most difficult to oxydise; and should therefore be preferred, not only for stopping, but for every other mechanical contrivance intended for the mouth.

mit to it, unless they are persuaded that it is a powerful antidote against that which tends to diminish their beauty; at this price alone they will consent to have a hot iron applied to the part which has been previously filed: this operation, which is called cauterisation, renders the part hard, dry, and less sensible; the same effect, however, often takes place even when the part is not cauterised; so powerful are the efforts of nature in arresting the caries, even when but feebly assisted by art. Some dentists also cauterise the hole of a tooth previous to stopping, and where there is considerable sensibility, it is perhaps advisable; but the instrument has often time to cool in a great measure before it is applied, and then its effect is no greater than would be produced by a sharp-pointed instrument, which destroys and disorganises the soft and sensible parts of the dental cavity; a watchmaker's broach is generally used for this purpose.

The secondary teeth may be tied in various ways, and for different purposes. Sometimes we tie round a tooth which is out of the row, a little waxed thread or silk, for the purpose of exciting a slight tumifaction in the gum, and of the membrane which lies betwixt the root and socket; by this means the tooth is rendered rather loose, and yields more easily to the daily pressure of the finger; which was previously found insufficient to reduce it to its proper place: the same mode is also used, for the purpose of facilitating the extracting of an irregular tooth, which we conceive to be very fast; the thread should be applied the day

before the operation. When there is too great a space between two teeth, a ligature is passed round them and crossed in a peculiar manner, so as to bring them more nearly into contact. Some dentists also make use of ligatures, in order to fix a tooth which has been partly or totally removed from its socket by a stroke or a fall; but this method, which always produces a little irritation, is less certain than a plate of gold. Lastly, in a complete fracture of the lower jaw, a piece of silk or of gold wire should be passed round the teeth adjoining the fracture, which will assist in the union of the bones, and prevent the due arrangement of the teeth from being destroyed.

(*y*) Plates of gold, or of platina, are employed with success in young persons as well as in adults; they sometimes serve as a point of support for ligatures, which are passed round certain teeth that are out of their natural direction, and brought through the holes which are drilled in the plate: in other cases they are fixed upon the large grinders, by means of

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(y) There is no part of the human frame, which more frequently requires the aid of art than the teeth; irregularities, however, which are now so common, might I believe be invariably prevented; and I have remedied some even at a more advanced age, than is supposed by some writers to be practicable; I have found a wedge of gold or silver extremely useful, fixed upon the lower jaw; but much will depend upon the exactitude and skill with which these instruments are made, and upon the regular application of them by the wearer; irregularities of the teeth, not only detract from the beauty and usefulness of the teeth, but have a strong tendency to accelerate their destruction, which circumstance will probably influence some persons who would not be affected by minor considerations.

gold wire, for the purpose of preventing the upper and lower teeth from coming in contact with each other, in order to facilitate the arrangement of an irregular tooth; it thus forms a kind of gag, which however, does not impede the motion of the jaws, as I have already observed: these plates are also used to perform the office of a lever, being formed into a kind of groove, which fits upon the teeth of the lower jaw; the surface of which acts against the posterior part of the upper inscisors, so as to force them over the lower ones, which is their natural position. And lastly, these plates are used to retain steadily in its place a tooth which has been knocked out of its socket, or one which may have been fractured near its neck, taking particular care to fix its two extremities by ligatures upon the neighbouring teeth of that which we wish to preserve, and not upon the tooth itself.

The secondary teeth are often covered with tartar, either immediately after their cutting, or after a lapse of time, and daily brushing is not capable of removing it; in this case recourse to the dentist becomes indispensable; who, by the aid of certain instruments can entirely remove it: his choice in the form of those instruments, his manner of using them by supporting the teeth and taking care not to injure the gums; all announce the address which he has attained by long practice in the operation, and which cannot fail to inspire youth with courage and confidence: bnt let them beware of making use of a violent acid, which may have been recommended

to make the tartar full off in scales, lest it also act upon the teeth, and reduce them to the state of those of a certain lady mentioned by Borel, who after having washed her mouth with aquafortis, for the purpose of relieving the tooth-ache, had the mortification soon after, of seeing all her teeth drop out. It would be much safer to clean them with a sharpened stone, which is done in some parts of America; the invention of which instrument belongs to the remotest antiquity, when neither iron, nor even copper formed any part of mechanical instruments.

The operation of fixing artificial teeth is not required in infancy, and for which young persons have little need, because the teeth which want replacing in them, are rather the effect of some accident than the consequence of those maladies which usually accompany age; and in general it is better to defer it until the growth of the body is finished, when the loss of a tooth begins to be felt more severely. A tooth fixed with a pivot, when there is a good stump for its support, merits the preference, being always very solid when the requisite conditions are observed, and no one can perceive that art has interfered. Teeth fastened in this way are perfect imitations of nature, and depose in favour of the art; but this is not the case with those which are fixed with ligatures or wires; for although they may be fitted with considerable exactitude, yet they are often discernable by their mobility or by their ligatures, and the charm of the illusion vanishes.

But it is still more objectionable if in order to con-

ceal these legatures, we injure the teeth that serve for their attachment, especially at an age when they are not yet solidly fixed in their sockets: art would often here refuse to lend her hand, but self-love demands that nature should be exactly imitated whatever be the event, and requires that no vestige of the fastening should be perceived: it would be well however, if young persons would listen to the voice of experience, and content themselves with artificial teeth fixed in such a manner as to enable them to enjoy them the longest possible time, as well as those teeth which serve for their support. Attentive to the same voice, they will not suffer artificial teeth to be attached to those which are diseased, and they will use caution in chewing with them.

Another mode of replacing teeth is by transplanting; which consists in taking a tooth out of the mouth of an individual, who at the price of silver will make the sacrifice, and replacing it immediately in the socket of a similar tooth taken from another person; it is a kind of engrafting, which is calculated to flatter the imagination of youth by its resemblance to the grafting of trees; this operation which is seldom performed in France, but more frequently in England has its partisans, who authorise it from the experience of success, as well as its opponents, who have observed its inconveniences, these have probably arisen from the difficulty of fulfilling the following conditions, which are absolutely indispensable in order to perform it with success.

Frst. The socket into which a tooth is about to

be transplanted, should not be fractured nor altered by disease, as fistula or abscess.

Secondly. The root of the tooth which is substituted, should be of a simular conformation to the original.

Thirdly. The socket should be a little larger than the volume of the transplanted tooth seems to require.

Fourthly. The person who wishes to have a tooth transplanted, should not be too young, nor subject to diseases, nor possessing other bad teeth.

Fifthly. The tooth transplanted should be taken from a sound person, or at least he should be free from any disease which could be communicated by inoculation.

Sixthly. Care should be taken to prevent the irritation and abscesses which sometimes succeed the operation.

On hearing the conditions, there will be few doubtless, who will be willing to run the risk of the operation, and were it otherwise, is it possible for art to lend her hand to it without compromising her dignity, how much soever she might be desired by youth? or ought she to suffer a mutilation which every sentiment of humanity reproves, in order to add to beauty? art should only be employed in preserving; a truth which has been handed down from the most remote ages of antiquity, and which is noticed by Apuleus, who observes, that medicine was not invented for the detriment of men, but for

their preservation: (1) the dentist who cultivates so important a branch of the science, ought then to be guided by this truth, according to the example of Hippocrates, who observed it in his oath as well as in his practice.

(1) *Nec excitio, sed saluti hominum Medicinam quæsitam esse*, lib. X. metam. 143.

CHAPTER VIII.

Of certain prejudices respecting the attention necessary for the teeth.

Among the causes which operate against the due arrangement of the teeth, may be reckoned a host of prejudices, against the influence of which youth should be warned, especially as they often make such an impression on the mind, as requires a considerable length of time to obliterate. We have already exposed some of them, and have endeavoured to inculcate more rational and just opinions; but there are others which require our notice, in order that they may be avoided. Some people imagine that the milk teeth have no roots; but if this were true how should they be so firmly held in their sockets, and perform from the time of their cutting, the functions which about the period of their being cast, they perform so imperfectly.

If certain persons who have a pointed and projecting chin, should say, that although they have had all their tempory teeth drawn in succession, for the arrangement of their secondary teeth, yet the latter are badly arranged, and the dentist was not able to prevent these effects; he who is acquainted with the

connection of these parts will answer, according to the principles I have laid down, that if he had sacrificed some of the seconday teeth, the arrangement though not so rich, would have been more regular and agreeable.

In the mean time, when the secondary teeth are irregular, badly formed, or affected with caries, he will not have them extracted in the hope that they will be replaced by others; which opinion was entertained by a planter, who a few years ago caused his daughter (who was near sixteen years of age) to have seventeen carious teeth extracted: these teeth have not the advantage of the twenty primitive ones, which are almost invariably replaced.

An observation which has frequently been made, is, that when a tooth is attacked with caries it often happens that the next to it becomes affected in the part which is in contact with the disease; hence the idea that caries is a sort of infection which communicates itself not only to those teeth which are in contact, but even to distant ones; either from one side of the mouth to the other, or from the upper to the lower jaw; hence the practice of separating the teeth, for the purpose of intersepting all communication, hence also the promptitude with which some people have these bad teeth extracted, in order to preserve the others. But although we often see caries manifest itself upon two teeth, in the part where they touch, we are not warranted in concluding that there is any infection; since we know by experience that the small grinders often traverse

the remains of the teeth which they succeed, the crown of which has been destroyed by caries, without contracting this malady and even without being discoloured. It frequently happens also that teeth remain sound, although they come in contact with a carious one. It will perhaps be said, that these facts seem at variance with each other, but some light may be thrown upon this subject, by considering that the caries often attacks two teeth simultaneously at the points of contact; which probably arises from a defect in their organization.

The teeth, therefore, need not be separated to prevent the caries from spreading; for how many persons are there, whose teeth are never affected with caries on the sides, but in those parts which never touch; and how many have had carious teeth in contact with the others without any bad effect; although there is nothing to dread from the seperating of the teeth, yet it should not be performed unnecessarily, lest the effects which arise from other causes should one day be attributed to it. Some perhaps will say with certain dentists, that the teeth which are too much pressed against each other, are more liable to decay; but the most striking proof of the contrary may be seen in almost every mouth; for the inscisors and canine teeth of the lower jaw are often excessively pressed, even so as in some instances to cross each other; and yet they are rarely attacked with caries in their points of contact. As to the pretended communication of the caries to distant teeth, it is so void of probability, that to waste many arguments in com-

batting such an opinion, would be to make some believe it possible, and might tend to draw the attention from the true causes of that malady.

The teeth of the peasant, the sweep, and especially those of the negro are often admired, and we are apt to imagine that since they are white and good, although no pains are taken to clean them, it is useless to pay any attention to the mouth; but this appearance is often deceptive, arising from the black or tawny colour of the skin, and if examined minutely, similar defects of conformation and similar diseases would be found as in others who brush their teeth; though perhaps in a less degree, on account of the strong and vigorous constitutions of these men, and of their manner of living which is less injurious to their teeth. One would imagine that those who are of this opinion, believe it necessary to have the teeth covered with dirt, and that the tartar tends to preserve and to sustain them: they might as well say that lichens, moss, and other plants which grow upon trees tend to their sustenance, or that shoes are preserved by being covered with mud.

We sometimes hear people complain that their teeth have become loose by cleaning; others would persuade us that they have lost theirs because they were filed; others again have been troubled with the tooth-ache merely because they shewed them to a dentist; his eye must have been as evil then as that which facinated the tender lambs of the shepherd Ménalcus, spoken of by Virgil. These reports pass current, and who should contradict them?

Those whose teeth are good without using care, remain silent, lest they should expose their negligence; others who retain them good on account of their attentions, wish it to be believed that it arises from their good constitution and health. A lady who possesses all her teeth good, which have been filed to remove the caries, knows well how much she is indebted to art, and can still smile with grace, but will not reveal the secret; all this is often witnessed by a dentist, but he is too discreet to wound the self love of any one: and out of complaisance he defers all explanation to the time when he is consulted. It is from this consideration, I have often remained silent during such conversation, and not because a solid answer could not be given: there have been numerous examples where the teeth, which were rendered loose by the presence of tartar, have become firm immediately after its removal; also where the file having been skilfully applied has entirely arrested the progress of caries, and thereby preserved the teeth; where stopping, by filling a cavity produced by caries, after destroying its sensibility has given such a degree of solidity to some teeth, that they have remained unaltered for upwards of fifteen or twenty years; and finally a critical examination of the mouth made at least once a year by an experienced dentist, has been the means of preserving the teeth, according to the intention of nature to extreme old age; for when consulted before disease has made much progress, he will effectually be able to administer all those means which

medical science dictates: by calling to the remembrance of the suffering person, the practice of the ancient physicians of Greece and Rome, he will convince him that it is not always by separating a part from its whole that a cure is to be obtained; and with the language of experience he will demonstrate that every carious tooth should not be rashly extracted, whether it aches or not.

To be able to laugh without fear of shewing the teeth, which have been skilfully filed; and to masticate freely with those which have been stopped with gold, are incontestable proofs of the resourses which we have a right to expect from the art. But what a satisfaction to be able to have one or more artificially replaced, which have been lost; with what alacrity is this innocent stratagem embraced, in order to hide the disorder of the mouth! without it how many mouths would be spoiled: it restores to the physiognomy a part of the graces which it had lost; and it would have rendered *nul and void*, the effect of a law among the Romans, entitled *cui Dens*, the object of which was to examine if any one who had lost a tooth, was in the possession of perfect health.

(*z*) From this consideration, it is important to

(*z*) The new and improved method of fixing teeth upon plates of gold, or platina, accurately fitted to the gum, seems to be the least objectionable of any; it was discovered by M. Talma, and adopted by Lesec: and as it is applicable to a single tooth, I generally preter it to the use of a pivot, because the latter is sometimes attended with pain: the four inscisors may be fixed in this way to the two canine teeth,

remove certain fears which a prejudice against artficial teeth is apt to excite in some persons. Let them consider the following truths, which at present they may be unacquainted with: The operation which consists in repairing the teeth which have been lost, is not painful, the roots are almost always necessary and the hole which exists naturally, serves for the lodgment of the pivot, without the necessity of any other hole; that in fine, true surgery rejects far from her practice the absurd idea of suspending the teeth to the upper jaw with a thread, either by piercing the gums, or the alveolar arch. These same persons should also be informed, that artificial teeth are useful in chewing, and if this is sometimes dispensed with, it is

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so as to answer all the purposes for which the teeth are naturally intended: the teeth may either be real ones, or made out of the tusk of the Hippotamus; the latter are apt to turn dark, but the former cannot be distinguished from those which have been implanted by nature. M. Dubois Chément, a dentist of considerable merit, invented a composition for artificial teeth, consisting of a kind of porcelain covered with enamel; but these teeth are liable to several objections: *First*, They grate against the other teeth, so as to produce an unpleasant noise. *Secondly*, If a piece should break off, and get into the stomach, it might produce internal hemorrhage. *Thirdly*, Although they answer best for whole sets, yet they seldom can be made to fit so well as those made from the tusk of the river horse, because the paste, which fits accurately before baking, requires such a degree of heat for that operation, as to cause it to contract. Mineral teeth made separate, and furnished with small pieces of platina, by which they are soldered to a plate of gold, have lately been invented by M. Fonzi: they are made of different shades, and possess some advantages over those of Chément; yet I do not recommend them generally, but it is probable that the exercise of that ingenuity which has already done much, may bring them to a still higher degree of perfection.

by way of precaution, in order to preserve those teeth: they ought not to believe the suggestion which some have urged, that the artificial teeth tend to detsroy the others; the loss of the others arises generally from the misfortune which has occasioned the loss of those which have been replaced; or it may happen when the rules of the art have not been scientifically observed in this operation.

In concluding this sketch of the means of preserving the teeth, I have not the presumption to believe that nothing more remains to be said upon the subject; my chief end was to demonstrate how far we ought to extend our attentions to the mouth; which is a necessary piece of knowledge in a good physical education. Every thing in nature is so co-ordained, that the health is like a fine musical performance, whose harmony does not please the ear unless all its parts are well executed; so perfect health has a tendency to keep the teeth good and the mouth fresh; and by a reciprocal action, when the teeth are in good order, and well constituted, they form a kind of pivot, for the support of that nutritive function from which the health is derived. That from the bad state of the teeth a thousand ills arise, which have not escaped the observation of dentists, but it is the province of the physician to exhibit the picture, whose language would perhaps be more persuasive: he has often seen stubborn opthalmies, heaviness and pain of the head, and pains in the ears, which arose from an affection of a tooth, and which disappeared immediately after its extraction: and still more fre-

quently has he heard persons complain of their teeth being loose, painful, or destroyed, who not being able to masticate without pain, have been obliged to swallow in large pieces, or have been reduced to the necessity of taking soups, broths, and hashed meat; in consequence of which, they have been troubled with a sensation of oppression, or pain about the region of the stomach during the ordinary time of digestion; for the aliment not being properly masticated, and mixed with the saliva, it becomes unfit to serve for that important function; hence, that deficiency of good nutritive juices so necessary for the growth of the body, and the preservation of the health; and from which various diseases take their rise. A celebrated Italian physician, Baglivi, (1) who paid considerable attention to this sourse of disease, says that those who would have a good digestion, and wish to arrive at old age, should take care of their teeth; and observes, that to neglect the teeth, is to injure the organs of digestion, and to lay the foundation of an infinite number of diseases.

(1) *Dentium curam habeto, ut benè digeras, et diu vivas; laxatis dentibus laxantur et chyloseos officinæ; hinc mille malorum occasiones. Baglivi opera omnia medico-practica, edit à celeberrimo Dotore Pinel,* page 112.

FINIS.

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